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ABSTRACT

Twelve author-contributed papers representing a cross-section of resarch, practice, and professional opinion are presented from a conference on severe behavior disorders of children and youth. The keynote paper, "In Search of Excellence in Special Education" by T. Lovitt is followed by these papers: "Autism: Some Commonly Accepted Presumptions" (A. Bauer and T. Shea); "Using Multiple Peer Exemplars to Develop Generalized Social Responding of an Autistic Girl" (J. Fox et al.); "Assessment and Treatment of Self-Stimulation in Severely Behaviorally Disordered Children" (J. Maag et al.); "Physical Intervention with Emotionally Handicapped Students: Issues and Best Practices" (K. Ruhl et al.); "Education for Self-Control: Classroom Applications of Group Process Procedures" (A. Reitz et al.); "Sequential and Simultaneous Processing in Children with Behavioral or Psychiatric Disorders: Validity of the K-ABC" (S. Forness and M. Herman); "Main and Interaction Effects of Metal Pollutants in Emotionally Disturbed Children" (M. Marlowe et al.); "Reconciling Educational Rights of Handicapped Pupils with the School Disciplinary Code" (P. Leone); "Teachers' Perception of Stress and Coping Skills" (L. Wheeler et al.); "Teacher-Owned Versus Student-Owned Problems: Does It Make a Difference?" (J. Hutton and T. Turnage); and "Competency Statements and Certification Standards for Teachers of the Behaviorally Disordered: How Do We Decide What Is Important?" (C. Young and R. Gable). (CL)

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Volume 7

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MONOGRAPH
In Behavioral Disorders

Severe Behavior Disorders of Children and Youth

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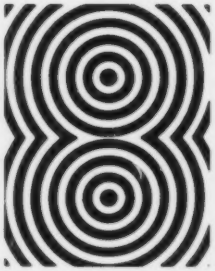

Severe Behavior Disorders of Children and Youth

Robert B. Rutherford, Jr., and C. Michael Nelson, Editors

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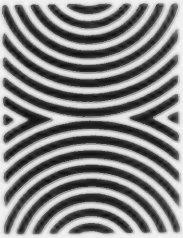

Preface

Volume 7 of the *Monograph in Behavioral Disorders* series contains selected papers presented at the Seventh Annual ASU/TECBD Conference on Severe Behavior Disorders of Children and Youth. The Conference, held each November in Tempe, Arizona, brings together professionals from across the country who are concerned with the education of behaviorally disordered children and youth. The 12 papers in this monograph were reviewed and selected by the consulting editors of *Behavioral Disorders* to represent a cross-section of research, practice, and professional opinion concerning special education for the behaviorally disordered. Based upon Tom Lovitt's keynote paper, "In Search of Excellence in Special Education," it is hoped that this monograph contributes in part to that search.

Robert R. Rutherford, Jr., Ph.D.
C. Michael Nelson, Ed.D.
Editors

In Search of Excellence in Special Education

Thomas C. Lovitt

I was quite impressed by the book, *In Search of Excellence: Lessons from America's Best-Run Companies*, by Thomas Peters and Robert Waterman. They scanned the country for excellent companies, seeking those that ranked high on six measures of long-term superiority. Three of those measures pertain to growth and wealth creation over a 20-year period, and three others are indexes of return on capital and sales. An additional criterion for excellence is that the companies must have been in the top half of their industry in four of the six measures over the 20-year period. As still another qualifier, they asked experts within each industry to rate the companies' 20-year record of innovation. According to Peters and Waterman, then, the three features that comprise excellence are: production, consistency, and innovation. They found 43 companies that meet those criteria.

The authors next interviewed personnel from 21 of those firms to determine why and how they became excellent, and from that group selected 14 supercompanies to study in more detail. Those organizations follow: Bechtel, Boeing, Caterpillar Tractor, Dana, Delta Airlines, Digital Equipment, Emerson Electric, Fluor, Hewlett-Packard, IBM, Johnson & Johnson, McDonald's, Procter & Gamble, and 3M.

COMMON CHARACTERISTICS OF EXCELLENCE

After carefully studying these 14 companies, Peters and Waterman came up with eight characteristics that are, to a great extent, shared by all of them:

1. *A bias for action.* When a problem arises in one of these organizations they get on with it. They don't stew about the matter or form task forces to study it. They react quickly.

2. *Close to the customer.* Like IBM, all of these companies emphasize service. They watch and listen to their customers, thus discovering what they want, and then try to give it to them.

3. *Autonomy and entrepreneurship.* These selected firms respect the independence of their workers. This is demonstrated by the fact they often leave them alone, or actually encourage personnel to come up with ideas they want to develop. In the process, these companies tolerate a number of mistakes, believing that the net effect is worth the effort.

4. *Productivity through people.* This feature is closely related to the above. Because of managements' respect for workers, these organizations gather ideas from these workers that later become company themes and policies.

5. *Hands on, value driven.* Hewlett-Packard, known for their "management by wandering around" type of supervision, exemplify the first point. In

their plants the managers go into laboratories, and see what is happening. With respect to the second feature, these excellent companies believe that the quality of the product is more important than the technology required to produce it.

6. *Stick to the knitting.* The exemplary companies stay with what they can do best. A motto at Johnson & Johnson, for example, is "never acquire a business you don't know how to run." To further exemplify this trait, none of the 14 firms are conglomerates.

7. *Simple form, lean staff.* None of the identified companies have complex organizational structures. In fact, the management plan of some of these super organizations is difficult to detect. Moreover, none of these excellent firms are top heavy.

8. *Simultaneous loose-tight properties.* Many of these companies are loose in that they encourage independence and autonomy, but they are tight, since they believe in a single unifying theme. That message generally pertains to service, quality, or excellence.

SOURCES FOR STUDYING EXCELLENCE

In recent months, excellence has become a buzz word in education. Since the publication of *A Nation at Risk: The Imperative for Educational Reform* (1983), dozens of articles on the topic have appeared in newspapers and magazines. Furthermore, a number of federal and state commissions have been formed to identify the components of excellence, and to make recommendations on how to acquire them.

Like those others, I have been concerned with excellence in education, particularly in special education. In recent months I have had several opportunities to study excellence (or the lack of) in a variety of circumstances. I'll identify just a few of those situations:

- Talked and worked with regular and special education teachers at every level: elementary and secondary;
- Chatted with a number of school administrators: principals, directors, and superintendents;
- Taught and advised graduate and undergraduate students;
- Mingled with dozens of university professors;
- Evaluated a large city special education program;
- Participated in grant writing;
- Invested considerable time helping my daughter locate a special education job;
- Lived with a public school music teacher and attended hundreds of school programs;
- Chatted with my son about his college experiences;
- Worked with a publisher in attempting to market a curriculum package.

INSTANCES OF NONEXCELLENCE

I collected and wrote little vignettes from all these experiences; many of them indicated features of excellence. There were just as many anecdotes, however, that revealed aspects of nonexcellence. There were so many, in fact, that I categorized them by type. Some of the nonexcellent stories were from teachers, others from administrators, and still others from higher education and miscellaneous sources. I'll cite only three from each sector.

First, from the teachers

Example one. The keynote speaker at the teachers' back-to-school meeting was a local pop psychologist. She too was talking about excellence, and referred a number of times to the Peters and Waterman book. Throughout her speech, she sprinkled in a dozen or so harsh criticisms of the University of Washington, mentioning instances of poor management, lack of imagination, and general nonexcellence. The teachers were highly entertained by these negative comments, for every time she so mentioned the University, they applauded and chuckled.

Example two. A group of teachers in a large school district filed a suit against the coordinator of special educaton because she suggested that they keep data on their students' progress. The administrator had simply asked them to keep *some* form of record; she neither specified the type of data to keep nor the form for gathering it. But the teachers were so set against monitoring of any form — fearing perhaps that *they* would be evaluated — that they threatened to take her to court.

Example three. Hundreds of teachers throughout the country put together educational programs for children, most of them don't bother to find out whether anyone else had already developed these programs. At last count, there were 25,000 time-telling programs, 18,000 for coin recognition, and 46,000 ways to train toileting.

And now the administrators (It wasn't difficult to find instances of nonexcellence from them.)

Example one. The special education director in a rather large district was displeased with his secondary program. He knew exactly why he was unhappy, and even knew what he wanted to do about it. Instead of proceeding directly with his plan, he called in a consultant to evaluate the program. Minutes before the evaluation, he gave the out-of-towner some not so guarded hints about what he was supposed to come up with when he viewed the secondary program. He then sat back and waited for *his* evaluation to come back to him.

Example two. The special education director of a nearby district was greatly relieved when the teachers in that district went on strike. He reported to me that while they were out he could finally get some work done. According to him, they were a great bother when school was in session; they asked for this, that, and who knows what else.

Example three. The teachers in a district south of Seattle complained that their director never came to visit their classes. They went on to lament that their coordinator never showed up either. When I asked them who their director was, they came up with the name of the preceding boss.

Not to leave out our friends at the university (Again, it wasn't hard at all to come up with examples of nonexcellence.)

Example one. According to some, there is the chairman of the number one special education department in the country who doesn't know how good his faculty is, and naturally, he doesn't reinforce their excellence. Some say, in fact, that he is so unaware that he doesn't even take credit for the highly prestigious group (even though, of course, he had nothing to do with it).

Example two. Dozens of university faculties throughout the country

schedule endless retreats, charges, seminars, task forces, and standing committees to rehash the same issues decade after decade: reorganizing from six to four departments; having three or four associate deans; and the perennial favorite, identifying the differences between the Ed.D. and Ph.D. degrees.

Example three. The dean of a large college of education sent a memo to his faculty alerting them to the fact that any time now they could expect to see him less often on the campus; he would be out in the field establishing linkages.

And finally, some miscellaneous sources

Example one. Recently, there have been some instances of "special ed gate." There was the professor at a mid-America university who double dipped — received money from the federal government and some school districts — when he should have been paid *only* by the government; and a second case, where two professional consultants, a high state official, and a national CEC officer were involved in a kick-back scheme.

Example two. There was a publisher who refused to print some supplementary materials for handicapped youngsters, even though considerable data were available supporting the fact they helped learning disabled children and others to learn more science.

Example three. We are all familiar with the various commissions — state, public, and federal — that make educational and administrative recommendations to schools and teachers. The databases for these suggestions range from scant to zero.

COMMON FEATURES OF NONEXCELLENCE

On studying those tales, I looked for common threads of nonexcellence, just as Peters and Waterman found common elements of excellence from the companies they studied. Following are the five recurring themes from these situations that I identified.

1. *Lack of heroism or integrity.* The former was exemplified by the special education director who wasn't courageous enough to solve his own problems. Instances of the latter were the various "special ed gate" incidences. Although there are some noble people out there, there are too few Wayne Morrises and Margaret Chase Smiths in education.

2. *Meager interest for history.* This is shown by the teachers who keep turning out time-telling and toilet-training programs. Another example comes from the university people who harangue about the same old issues year after year.

3. *Not much guidance, support, or reinforcement either within or across the sectors.* Two instances support this point: (a) the special education teachers who didn't know the name of their director; (b) the department chairman who neither realized his group was NUMBER 1 nor reinforced their excellence.

4. *Too little respect across sectors.* This unfortunate point was shown by the teachers who applauded the pop psychologist for criticizing the University of Washington. It was further pointed out by the special education administrator who was relieved when his teachers went on strike.

5. *More fear than esteem for data.* The teachers who filed a suit against

the special education administrator for asking them to keep data illustrated this point. Another example was the publisher who refused to print the supplementary material for special children, even though there were data suggesting its worth. Other examples are the commissions who recommend major educational changes when little data are available to support them.

RECOMMENDATIONS

So now that we know there are several illustrations of poor practice in special education, what can we do to decrease nonexcellence, and perhaps increase excellence? There are, in my opinion, four areas that should be addressed:

1. The need for a sophisticated measurement system to support the fact that we, as teachers, are doing something. Remember, Peters and Waterman identified six measures for the model companies. The simple little achievement tests and rating scales that we often rely on to indicate pupil or teacher performance simply do not suffice.
2. The need to convince our primary constituents, the parents, to demand excellence. They must be instructed to expect data that reflect the gains of their youngsters and show evidence of other achievements.
3. The need to train administrators to recognize excellence and convince them to reinforce it when they see it. This will be difficult, but it can be done.
4. The need for an identifying slogan. Maytag's motto is "dependability" and Singer's is "we service what we sell." We, in education, might use the old standby, "satisfaction guaranteed."

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Autism: Some Commonly Accepted Presumptions

Anne M. Bauer and Thomas M. Shea

ABSTRACT

The term autism *is frequently misused and imprecisely applied. Since the publication of Kanner's first article in 1943, diversity in the description of autism has become the norm. A set of presumptions concerning autism has evolved which creates questionable assumptions concerning the symptoms and behaviors of autistic children.*

In this paper, the authors state that several commonly accepted presumptions regarding the symptoms of autism are not supported in the literature, autistic persons form a heterogeneous group, and the validity of the construct "autism" as currently applied is questionable. This article concludes with recommendations for the design of future research.

In the 1930s, Kanner observed a number of children whose unusal characteristics and clinical picture appeared unlike any psychosis previously described in the literature (Kanner & Lesser, 1958). As a result of these observations, Kanner (1943) published a description of 11 children unable to form social relationships from birth. This publication he later wrote "was prompted merely by a wish to communicate to my colleagues a number of experiences for which I could find no reference in the literature" (Kanner, 1973, p. 138).

In 1944, Kanner changed the name of the syndrome he had previously described from "autistic disturbances of affective contact" to "early infantile autism." He stressed that the common denominator among these children was a congenital inability to relate appropriately to people and situations.

The history of the study of autism is marked by the misuse and imprecise applicaton of Kanner's description of early infantile autism. In 1964, Kanner discussed two developments which led to this confusion. First, the concept was diluted, and used as a "pseudo-diagnostic wastebasket for a variety of unrelated conditions (p. vi). Second, psychodynamic theories became popular, thus excluding serious consideration of other perspectives. During the 1950s, "the world was swarming with a multitude of autistic children. It became a habit to dilute the concept of diagnosing autism in many disparate conditions which show one or other isolated symptoms found as a feature part of the overall syndrome" (Kanner, 1973, p. 8). The term was abused to the point that it "threatened to become a fashion" (Van Krevelen, 1953, p. 192).

Not all researchers applied autism to children manifesting the characteristics of Kanner's syndrome. Bender (1959) indicated that though autism was a valuable concept, it described only a limited group of children from a particular strata. She suggested that autism was neither a clinical nor etiological entity.

Menolascino (1965), calling for more careful differential diagnosis and more careful use of the term autism, suggested that the diagnostic labels *childhood*

psychosis, nervous system disorders with associated emotional disturbance, childhood schizophrenia, atypical children, and *early infantile autism* were used interchangeably with reference to the same children. He remarked that the descriptive nature of Kanner's delineation of autism had been overlooked and generalized to the point that "all autistic phenomena noted in disturbed young children are squeezed into the same Procrustean Bed" (p. 210).

In the early 1970s, Kanner suggested that "some of the remaining controversies are based more on semantics than on intrinsic essentials" (1973, p. 135). Semantics, however, were not the only controversy with regard to autism. In a study of diagnostic systems applied to autism, DeMyer, Churchill, Pontius, and Gilkey (1971) found only 35% correspondence among the systems, indicating that some children could score high on one diagnostic system and low on another. Schopler (1978), recognizing the confusion and disagreement in the diagnosis of autism, suggested that one problem in defining the syndrome is its very complexity.

Diversity in the descriptions of autism has become a norm. Coleman (1976) suggested that autism, rather than a single syndrome, included three major groups of children: the classic autistic syndrome, childhood schizophrenia with autistic-like symptoms, and the neurologically impaired autistic syndrome.

Rutter (1978) and Freeman and Ritvo (1978) presented definitions of autism which differed in purpose and content. Whereas the Rutter definition is historically and research based, the Freeman and Ritvo definition is a product of political need (Schopler, 1978). Schopler, in discussing these definitions, stated that "the essential features of autism were not the same in the two definitions."

The concept of autism has been and is presently applied to a wide range of children. Wing suggested this confusion "stems from Kanner's belief that classic autism is a specific unique entity" (1979, p. 9). In spite of the existence of common behaviors, the characteristics of individuals described as autistic vary greatly. The wide variations of behaviors manifested by these children are reported throughout the literature (Coleman, 1976; Goldfarb, 1974; Knoblock, 1983; Rutter, 1978; Wing, 1976), making the syndrome as originally described by Kanner questionable.

It appears that a set of presumptions concerning autism has evolved which in turn creates questionable assumptions concerning the symptoms and behaviors of autistic children. Several of these presumptions have been explored in empirical studies. In this paper, the authors demonstrate that:

1. Several commonly accepted presumptions regarding the symptoms of autism are not supported in the literature.
2. Autistic persons are a heterogeneous group of individuals.
3. The validity of the construct *autism* as currently applied is questionable.

The paper concludes with recommendations for the design of future research.

COMMONLY ACCEPTED PRESUMPTIONS

An extensive review of the literature indicated that several behaviors presumed to be present in autism are unsubstantiated in empirical studies (Bauer, 1983). Among the symptoms not supported unequivocally in the literature are: (a) inconsistent motor and language development, (b) avoidance of eye contact, (c) excellent rote memory, (d) avoidance of "I" and pronominal reversal, (e) noncommunicative speech, (f) obliviousness to social situations, and (g) negativism.

Inconsistent Motor and Language Development

Kanner (1943) indicated that autistic children were skilled in the use of objects. Rimland (1964), supporting this contention, wrote that autistic children were skillful in fine motor skills, well coordinated, and agile. The motor milestones of autistic children were described as within normal limits by Paluszny (1979) and Lovaas (1980). In a study of autistic monozygotic twins, Bakwin (1954) referred to unpredictability and incongruities in the developmental milestones, with precocious development in some areas and delays in others. He found incongruities between speech and motor development with motor milestones often within normal limits concurrent with language delay.

Normal motor development, however, is not supported in empirical studies. Lotter (1966) found that only 12% of the sample of severely autistic children had normal motor milestones and 6% were very late in motor development. In their sample, Prior, Boulton, Gajzago, and Perry (1975) found significant differences between autistic and nonautistic groups in gross motor development. DeMyer (1979) found that parents reported difficulty in the motor development of autistic children with perceptual motor skills below age level.

In an observational study, Bram, Meier, and Sutherland (1977) found language and motility disturbances to be linked. Ornitz, Guthrie, and Farley (1977) reported delays in motor development to be statistically related to a delay in early language and/or perceptual development. They reported that by the age of 6 months, autistic children were significantly delayed in motor development.

Empirical studies indicate that motor and language development are deviant in autistic individuals. Motor milestones are not reported to be within normal limits in recent empirical studies.

Avoidance of Eye Contact

Avoidance of eye contact is reported in several diagnostic descriptions of autism (Clancy, Dugdale, & Rendle-Short, 1969; Curtis, 1968; Van Krevelen, 1971). The earliest study of eye contact is the "gaze aversion" research of Hutt and Ounsted (1966). They hypothesized that among autistic children, the human facial configurations in the environment elicited more avoidance than nonhuman configurations in the environment. They concluded that autistic children fail to develop eye-to-eye gaze as a means of minimizing overarousal. In addition, they suggested that autistic children appear to receive sufficient information from the environment through peripheral vision or fractional glances.

Schriebman and Lovaas (1973), in a study of correct identification of male and female dolls, found that the dolls' heads were not the stimuli consistently used by autistic children for identification. They hypothesized that the human face is simply not attended to by the autistic child. Prior et al. (1975) found a lack of eye contact occurred significantly more in an autistic group when compared to control groups.

In the late 1970s, eye contact was questioned as a means of differentiating autistic from nonautistic individuals. Though Rutter (1978) observed eye-to-eye gaze, he noted the nonuse of eye contact to gain attention, when addressed, and when being aggressive. Though Freeman, Guthrie, Ritvo, Schroth, Glass, and Frankel (1979) found that eye contact was one of 11 behaviors in which there was a significant difference between the mentally retarded and the autistic, a lack of eye contact was found in both populations. In

a later study using the same instrumentation, Freeman, Ritvo, Schroth, Tonick, Guthrie, and Wake (1981) compared autistic to normal and mentally retarded populations. They reported eye contact in all subjects of the three groups. Eye contact on demand was observed most frequently in the autistic individuals with intelligence quotients over 70 than in the control groups.

In a study by Churchill and Bryson (1972) no differences were reported in the visual fixation of autistic and nonautistic samples. Autistic children gaze less at human faces than nonautistic children; however, their visual attending to people or human images is not significantly different from their attending to objects (Hermelin & O'Connor, 1970). Avoidance of eye contact among autistic children is not reported consistently in the literature.

Excellent Rote Memory

Excellent rote memory is reported in Kanner's original description of autism (1943). Accurate memory for rote items is discussed frequently in the literature (Cappon, 1953; Rimland, 1964; Wing, 1976).

Empirical studies, however, have produced varied descriptions of the memory skills of autistic children. Bryson (1972) and Boucher (1981) report both an inability to remember visual responses *after* a delay and deficits in recall. However, other studies allowing for brief sensory specific memory responses found no deficit in the short-term memory of the autistic child (Hermelin, 1976; Prior & Chen, 1976). In a study matching subjects by mental age and digit span memory, Fyffe and Prior (1978) found no difference between normal and autistic children in the high memory span group. They suggested that developmental level rather than processing problems specific to autism may be the cause of the discrepancy. Maltz (1961) reported memory to be adequate when processing is minimal. Excellent rote memory is not consistently reported in the literature as a symptom of autism.

Avoidance of "I" and Pronominal Reversal

Kanner (1943) stated that the verbal subjects he studied repeated personal pronouns as heard. The avoidance and misuse of "I" occurs in many statements about autism (Cappon, 1953; Rimland, 1964). This symptom is included in Creak's criteria (1964). Though documented in individual case studies (Cunningham, 1966; Cunningham & Dixon, 1961) and in studies in which information was supplied by teachers and parents (Lotter, 1966; Prior et al., 1975) the exact nature of pronominal reversal as a symptom of autism has not been clarified.

In a review of 63 cases, Rutter (1965) concluded that pronominal reversal may be an aspect of echolalia. Fay (1979) indicted that pronominal reversal and nonuse of "I" may be due to the immaturity of autistic speech rather than deliberate avoidance of the pronoun. "The problem is one of inaction rather than commission and reflects their inability to cope with the shifting reference of person deixic" (Fay & Schuler, 1980). In a study of autistic children who demonstrated echolalia, Bartak and Rutter (1974) found no avoidance of the pronoun "I." They suggested that a failure to use the pronoun "I" may be a product of the child's echoing only a portion of that which is heard.

Empirical studies suggest that rather than an individual symptom of autism, pronominal reversal or elimination may be a product of either echolalia or an inability to attend appropriately to tenses.

Noncommunicative Speech

Of his original sample, Kanner found no difference between the eight verbal and three mute children in their ability to communicate. In his description of autism, Cappon (1953) agreed with Kanner that speech was not used primarily to communicate. Discussions of nonfunctional speech occur throughout the literature (Churchill, 1978; DeMyer, 1979; Rimland, 1964; Van Krevelen, 1971). It is estimated that as many as 50% of autistic children fail to develop functional speech (Paluszny, 1979).

In a case study, Cunningham and Dixon (1961) and Cunningham (1966) found that speech was infrequently used for communicaton. Lotter (1966) reported that in his sample, 63% of the severely autistic subjects and 33% of the moderately autistic subjects did not use speech communicatively. Parent reports indicated poor communication (DeMyer, 1979; Prior et al., 1975).

However, noncommunicative speech is not consistently reported in the literature. Kanner (1946) suggested that some noncummunication may be due to the listener's inability to understand personal metaphors. Needleman, Ritvo, and Freeman (1980) found that some autistic children did use speech communicatively. In a study by Freeman et al., (1981) communicative speech was observed in 81% of the autistic children with IQ's over 70 and in 27% of the autistic children with IQ's less than 70. Rather that being noncommunicative, speech patterns may be a response to recognizing a reply is required, but not knowing the correct form of the response (Caparulo & Cohen, 1977).

Obliviousness to Social Situations

Kanner wrote of the autistic child's extreme aloneness (1943). This aloneness has been described as a "lack of rapport" (Cappon, 1953) and a "standoffish manner" (Clancy & McBride, 1969; Rendle-Short & Clancy, 1968). Richer and Richards (1975) reported that autistic children avoided social interactions.

Bernard-Opitz (1982) found that changes in verbalizations suggested that the autistic child was aware of interaction patterns rather than being unresponsive to social stimuli. Autistic children have been observed to be similar to nonautistic children in approach and proximity to people (Castell, 1970). Howlin (1978) indicated that "poor social interaction is attributable more to the child's inability to comprehend and become involved in social situations than to an unwillingness to do so" (p. 65). Older, higher functioning autistic individuals do demonstrate an awareness of social expectations but frequently respond to these expectations inappropriately (DesLauriers, 1978; Dewey & Everard, 1974).

Studies have been conducted to explore the social initiations of autistic children with nonautistic peers. Social initiations by a nonautistic peer were shown to increase the positive social behavior of all the autistic subjects (Ragland, Kerr, & Strain, 1978). With the addition of prompting and reinforcement to social initiations, the social behaviors of the autistic children were increased (Strain, Kerr, & Ragland, 1979). Although the responses were literal imitations, Riquet, Taylor, Benaroya, and Klein (1981) found modeling of symbolic play effective in eliciting higher levels of play in autistic children. The autistic children tended to modify their behavior in response to social stimuli.

In regard to social awareness, the autistic population is highly diverse, evidencing many social skills, inconsistencies, and limitations (Knoblock, 1983).

Negativism

Curtis (1968) suggsted that one sign of childhood autism is resistance to training. Rendle-Short and Clancy (1968) indicated that a strong resistance to any learning is a major manifestation of autism. Prior and McMillan (1973) found that parents reported 100% of the autistic children as resistant of new learning. Clancy et al. (1969) found that autistic children differed significantly from control groups in negativism.

Several empirical studies of negativism in autistic children have been conducted with conflicting results. Cowan, Hoddinott, and Wright (1965) found that some autistic children would consistently give fewer than chance in correct responses to a task, though errors were not systematic. Clark and Rutter (1977) found no deliberate avoidance of the correct response in the autistic children they studied. Jose and Cohen (1980) reported negativism in their sample; their result may be spurious due to their definition of negativism as any off-task behavior. Volkmar and Cohen (1982), in exploring negativism in a variety of responses, found that incorrect responses seemed to reflect the social, emotional, and cognitive demands of the task rather than negativism. Negativism is not unequivocally supported as a symptom of autism.

AUTISTIC INDIVIDUALS: A HETEROGENEOUS GROUP

The brief review of literature in the previous sections demonstrates that several of the accepted symptoms of autism are not consistently substantiated in the literature. These inconsistencies suggest that the autistic population is a heterogeneous group and therefore, generalizations from one sample to another are not appropriate.

Schopler (1978) stressed the diversity of symptoms in the autistic syndrome, all of which are not present in every child. The variation in the autistic population has been described as "dramatic" (Knoblock, 1983). Rutter (1978) suggested that autism is not a homogeneous condition. He questioned whether autism is a single disease entity, a syndrome of biological impairment, or a collection of symptoms resulting from several biological and/or psychosocial influences. Rutter suggested that the possibility remains that autism is a behavioral syndrome without a single cause, but with a common biological causation. If this is the case, the syndrome may include several different but distinct conditions, like those which occur in cerebral palsy and mental retardation.

The literature on autism is marked by inconsistencies in identifying samples for research (Ferrara, 1982). If consideration is given to the retardation frequently found to coexist with autism, then some symptoms may be attributable to developmental delays and deviations rather than autism (Prior, 1979). Rutter (1978) indicated that research which does not account for intellectual functioning cannot draw accurate conclusions with regard to autism. Lacking control for intellectual functioning, any differences found may be attributable to autism or mental retardation or the combination of these two factors. Much of the research reported in the literature is unreliable because precise delineation of levels of intellectual functioning and symptoms is not reported (Hingtgen & Bryson, 1972).

According to Schopler (1978) no classification can be any better than the empirical knowledge on which it is based. The empirical knowledge concerning autism is contradictory and inconsistent. Even when control groups are used in research, sufficient knowledge is lacking to control for all the variables

which may affect the performance of the autistic child (Neel, 1982).

The autistic population, as reported in the literature, is heterogeneous. Consequently, it is difficult to generalize from one research sample to another.

VALIDITY OF THE SYNDROME

Wood indicated that:

> Regardless of their precision, operational definitions . . . can never be true since the phenomena they describe are too complex to be easily captured; instead, it is their usefulness that is at question. Does the definition provide a basis for carrying out the tasks of special educational programming or research to benefit those labeled?" (1982, p. 11)

Neel (1982) suggested that there are actually two questions to be answered regarding autism: (a) Is it possible to identify the autistic? and (b) Will separating the autistic child into a distinct category of handicap enhance his/her educational experience? In relation sto current diagnostic procedures, Neel finds that current definitions do not identify a set of children who can be uniquely helped. All intervention strategies used successfully with autistic children have been effective with other handicapped children. He concluded that at this time there is no sound reason to identify autistic children for educational purposes.

Rutter (1978) also questioned differentiating autism at this time. He noted that in a discussion of dyslexia, Davis and Cashdan (1963) indicated that the differentiation of a behavioral syndrome can only be justified as having meaning if that differentiation carries information about other differences relative to etiology, prognosis, or treatment. Rutter indicated that using this criteria, differentiating autism at this time may not be justifiable. The validity of the construct of autism may be questioned.

RECOMMENDATIONS

To mitigate problems related to the validity of the construct autism the authors recommend:

First, a turning away from hypothesizing with regard to autism to well-designed empirical research is recommended. The state of the art of the study of autism is similar to that described by Shapiro, Shapiro, Bruun, and Sweet (1978) with regard to Tourette syndrome:

> Periodically in the history of medicine, theory outpasses facts. The theory becomes overelaborated and is imposed on practices. Theory is eventually replaced by clinical empiricism and observations or research studies. Thus, Hippocrates advised that the overelaborate theoretical formulations of his day be replaced by the observations of patients." (p. 4)

In describing the low incidence disorder Tourette syndrome, Shapiro and Shapiro (1971) contended that premature psychological theorizing in lieu of careful clinical observation generates inaccurate theories leading to iatrogenic psychopathology and spurious beliefs about cause, course, prognosis, and treatment. Deductions based on incorrect assumptions can influence and obscure the clinical data needed for appropriate treatment decisions. Specific areas for empirical research include contrasting language patterns of autistic and nonautistic children, cognitive processing of autistic and nonautistic child ren, and precise observational studies of specific behavioral symptoms of autistic and nonautistic children.

Second, it is recommended that studies characterizing autistic individuals control for mental age and intellectual level. Many mentally handicapped children perform behaviors which have been described as autistic: echolalia, inappropriate social responses, and stereotyped behaviors. Therefore, without accounting for mental age, it will remain difficult to differentiate those symptoms which are autism-specific and those which are related to developmental delays.

Third, longitudinal, empirical studies of behavior changes as a result of specific interventions are recommended. Empirical studies are recommended to delineate effective educational strategies for coping with the inappropriate behaviors demonstrated by autistic children. Techniques for developing functional language should be studied. Through longitudinal, empirical studies, educational strategies unique to autistic individuals may be developed.

Fourth, it is recommended that research studied include careful descriptions of the autistic sample (DeMyer et al., 1971). The limits of findings of research with regard to application to other autistic individuals should be acknowledged. (Schopler, 1978).

With the application of these recommendations, Neel's (1982) concern that it is not possible to identify the autistic child will be alleviated. The construct autism may emerge as valid.

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Using Multiple Peer Exemplars to Develop Generalized Social Responding of an Autistic Girl

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ABSTRACT

This study investigated effects of a multiple peer exemplar training program on the generalization of newly acquired social responses of an autistic child. The results indicated that initiated social responses of the autistic girl trained systematically across peers began to generalize to untrained peers with the introduction of training to the third peer. In addition, it was found that increases in the autistic child's initiated responses in an integrated generalization setting began to increase after training of the second peer and continued at a higher but variable rate through the remainder of the study. Finally, the data indicated the majority of the autistic child's initiations were to nonhandicapped peers in the generalization session. Few initiations were directed to the subject's autistic classmates, and most often these social bids were not followed by a response from the autistic classmates. The study suggests that the multiple peer exemplar training approach was successful in producing generalized social interaction across peer and setting. The general lack of responsiveness of autistic children would also support the importance of training social skills to autistic children in integrated settings.

A defining characteristic of autistic children is seriously impaired responsiveness to social stimuli (Kanner, 1943; Ross & Pelham, 1981). Autistic children are frequently observed to exhibit little or no interaction with peers or adults and may actively avoid physical-social contact. A number of behavioral procedures have successfully been employed to teach specific social skills and/or increase autistic children's social interaction with other children including adult (Romanczyk, Diament, Goren, Trunell, & Harris, 1975) and peer-mediated (Ragland, Kerr, & Strain, 1978) prompting and praising and increased peer social initiations (Strain, Kerr, & Ragland, 1979). These studies have indicated that the procedures have produced initial reliable increases in autistic children's performance of basic social responses and/or peer interactions. Unfortunately, the generalization of improved social functioning has been and remains problematic. In those few studies in which it has been assessed, the "spontaneous" generalization of social responding across peers, situations, and/or time has failed to occur reliably (Strain, Kerr, & Ragland, 1979). Difficulties in achieving such generalized and durable social responding has not been confined to autistic children, but has characterized social interaction research with handicapped children in general (Fox, Shores, McGill, Bambara, Gunter, & Brady, 1983; Gresham, 1981; Strain & Fox, 1981a, 1981b).

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It has been argued repeatedly that generalized behavior change is best conceptualized as a phenomenon which can be controlled and deliberately produced, that it is a response to be programed rather than expected to occur (e.g., Baer, Wolf, & Risley, 1968; Marholin & Siegel, 1978). Indeed, Stokes and Baer (1977) have enumerated eight potentially effective strategies, one of which was multiple exemplar training. Simply stated, this consists of training target responses in the presence of multiple examples of critical stimuli. In the case of peer social interaction, the critical stimuli are other children.

At least two previous investigations have directly investigated the use of multiple exemplars of critical social stimuli to promote generalized social responding. Stokes, Bear, and Jackson (1974) reported the generalizaiton of a greeting response in a severely mentally retarded subject by systematically and sequentially training the subject to emit the response across different experimenters. A more recent study by Gaylord-Ross, Haring, Breen, and Pitts-Conway (1982) evaluated the effects of a social skills training package with autistic adolescents. This package involved concurrent (rather than sequential) training of social interaction responses across six nonhandicapped peers. Generalization of social interaction effects to nontraining conditions was greater and more reliable under the social skills-multiple exemplar conditions than under previous baseline and intervention conditions in which subjects simply were provided with interactive materials (videogames, radio) and trained in their use. A third investigation by Lancioni (1982) found considerable stimulus generalization of newly trained social responses by mentally retarded preschoolers following the application of an intervention package which included multiple nonhandicapped peer tutors. However, as in the Gaylord-Ross et al. (1982) study, the specific generalization effects of multiple peer training were not isolated from other intervention procedures which were simultaneously applied. To date the Stokes, Baer, and Jackson (1974) study is the clearest example of generalized social responding through multiple exemplar training.

The present study further investigated the effects of multiple peer exemplar training on the generalization of newly acquired social responses by autistic children. A sequential multiple exemplar training procedure similar to that of Stokes et al. (1974) was employed, rather than the concurrent training procedures of Gaylord-Ross et al. (1982), in order to systematically evaluate the effects of multiple as opposed to single peer exemplar training. In addition to evaluating generalization across nonhandicapped peers within the training setting, the subject's generalization of social responses to both nonhandicapped and other autistic children was evaluated during a later occurring integrated free play activity.

METHOD

Subject

The subject for this study was Linda, a 14-year-old girl diagnosed as autistic by the psychological evaluation team of the Nashville and Davidson County Public School System. Reports from the program coordinator and her classroom teacher indicated that, like her classmates, Linda rarely initiated to or interacted with other children. She had no verbal communication skills and only limited signing skills. In addition, Linda occasionally engaged in stereotypic hand movements. However, Linda was under fairly good adult instructional control;

that is, she complied with verbal directions given by adults.

The peers consisted of 4 nonhandicapped children, 3 boys and a girl, ranging from 11 to 12 years of age. All were selected from regular education classrooms housed in the same building as the autistic program and were nominated by their respective classroom teachers on the basis of (a) above average performance in classwork, (b) social competence and interaction with normal peers, and (c) an expressed interest in participating in a research study with handicapped children. The one female peer later chose to remove herself from the study and was replaced by another female (see the Results section of this report).

The teacher for this study was a master's level teacher trainee from the field-based special education teacher training program at Goerge Peabody College of Vanderbilt University (Kerr, Salzberg, Shores, & Stowitschek, 1979) who was completing practicum requirements in another classroom in the autistic program.

Setting

This study was conducted within a public elementary school which housed programs for both regular education students and special education autistic students. The autistic program was in a segregated wing of the school building with only limited interaction of handicapped and nonhandicapped students occurring in the lunchroom. The training setting for this study was a vacant classroom directly across the hallway from the autistic subject's classroom. The training room was approximately 10 x 15m and contained chairs, tables, and play materials. Access to any portion of the room was available to the subject and peers during training. The generalization sessions took place in the regular play area of the subject's regular classroom (an area approximately 3 x 5m enclosed by walls and moveable partitions). During generalization sessions the 4 nonhandicapped peers as well as 3 autistic classmates of the subject were present. The same toys from the training sessions were available in the generalization setting.

Behavioral Measures

The observation system employed by Strain and Timm (1974) was used to measure continuous dyadic interactions. All behaviors were coded as either initiated, responded, or interaction events. Initiated behaviors were any social behaviors emitted more than 3 seconds after another child's social behavior. Responded behaviors included any child's social behaviors emitted within 3 seconds following another child's social initiation. If, within 3 seconds of the original initiation-response unit, social responding continued, this was recorded as an interaction.

Observational Procedures

During training and generalization sessions, Linda was the focus of observation. All subject initiations, responses, and interactions with peers, classmates, or teacher, were recorded sequentially. To record the behaviors, the observers spoke the associated codes into a General Electric Micro II cassette recorder which ran continuously during each observation session. To indicate the cessation of an interaction the observers stated "Stop."

Following the observation session, the tapes were replayed and the codes

were manually entered into a Radio Shack TRS-80 Model III microcomputer using the Computer Assisted Research into Teacher-Learner Outcomes Program (CARTLO). CARTLO is an observation and data analysis program developed by Semmel & Frick (1980). The internal clock of the TRS-80 and the use of the CARTLO program permitted the entry and recording of the data in real time. The resulting data included frequency of initiations and responses of the participants, and an estimate of the time engaged in social interaction. On 45% of the training days two observers simultaneously but independently recorded the behavior of the subject, peers, and teacher to assess interobserver agreement. During these sessions, the observers stood several feet apart and whispered codes into their separate microcassette recorders.

Baseline Procedures

Each morning Linda was escorted to the training playroom for four consecutive training sessions. Each session consisted of a 5-minute period in which one nonhandicapped peer at a time was brought into the training room. Linda and the peer were seated on the floor approximately one meter apart and within reach of an array of three to four toys or games. The session began with the teacher instructing the dyad with the phrase, "It's time to play." This also signaled the onset of observation and recording. If Linda had not engaged in either solitary or interactive play one minute after the instruction was given, then the teacher instructed her to play with a particular toy. Once Linda was manipulating the toy, the teacher discontinued her interaction with the subject. This procedure was repeated with the other 3 peers in the three remaining training sessions.

Prior to each baseline session, the peer was given three instructions. First, he/she was to respond to all of the subject's initiations, and subsequently, interact with the subject. Second, the peer was not to initiate to Linda. Finally, the peers were instructed to be particularly alert to any of Linda's motor-gestural initiations due to Linda's lack of verbal communication skills.

Intervention Procedures

Conditions in the training session were the same as during baseline with the following additions. The teacher was instructed to prompt Linda to make social initiations to the peer. The prompting tactics consisted of a three-step graduated guidance technique (verbal command, modeling and verbal command, and physical guidance plus verbal command) and verbal praise for appropriate initiations by the subject and for any ensuing positive interactions with the peer. These procedures are more fully described in the direct shaping section of the *Social Competence Intervention Package for Preschool Youngsters* (Day, Powell, & Stowitschek, 1980). Prompting and praising were applied to Linda's initiations with each of the nonhandicapped peers at staggered points in time.

Generalization Session Procedures

Generalization sessions were 10 minutes long and occurred immediately after the lunch period for Linda and her classmates. A 3-hour interval separated the training and generalizaton sessions. Linda, the 4 nonhandicapped peers, and 3 of Linda's handicapped classmates entered the play area simultaneously. The verbal command, "It's time to play," was given to begin the generalization session. Each child was allowed to choose any of the available toys with which

to play and could interact with one another. Again, peers were instructed that they were not to initiate to Linda, but they could respond to any of Linda's initiations and continue to interact with her as long as she maintained positive social behavior. No other instructions were given nor did the teacher interact with the children after the initial command.

Experimental Design

A multiple baseline (Hersen & Barlow, 1976) across peers was employed to assess the effects of the social skills training intervention on the social behavior of the subject and to direct any generalizaiton of social behaviors across peers during training sessions. A concurrent baseline was employed to assess generalization across settings.

RESULTS

Interobserver Agreement

Training Setting. An estimate of interobserver agreement was obtained by calculating the session totals for each category recorded by the primary and secondary observers and then computing the Pearson Product Moment correlation coefficient (Edwards, 1976) between the paired observations for each category. This approach to observer agreement was considered appropriate since subsequent data analyses were based on session totals (Wahler & Fox, 1980). These correlation coefficients of the observers' totals for each category ranged from 0 to 1.00 with a median of .97. With the exception of the zero correlation (Linda's initiated interactions with Kathy) the correlations were very high and statistically significant at the $p = .01$ level. Inspection of the raw data for Linda's initiated interactions with Kathy revealed that there was only a single agreement check session in which that particular category was observed, the secondary observer scoring one such interaction and the primary observer scoring no such interaction. Comparisons of the magnitude of the difference between observers' session totals for each category were also computed and no significant differences were found.

Generalization Setting. The number of sessons in which it was possible to arrange agreement checks during generalizations was too few (i.e., three sessions) to compute a meaningful correlation coefficient. Consequently, agreement was assessed by visually comparing the session totals calculated for the primary and secondary observers. The primary and secondary observers' totals were identical for each category across the sessions.

Training Setting

The line graph in Figure 1 presents the frequency of Linda's initiations while the bar graphs indicate the percentage of time spent in extended interactions with the nonhandicapped peers in the training setting. As can be seen in Figure 1, there were few or no initiations to or interactions with peers during the baseline. Once the teacher prompting and praising procedures were applied to Linda in the training setting with Charles, the first peer, Linda began to initiate to him. Although not shown in Figure 1, Charles responded to virtually all of these initiations. These data indicate a slow but steady increase in both the frequency of Linda's initiations and the percentage of time which she spent in interaction with Charles.

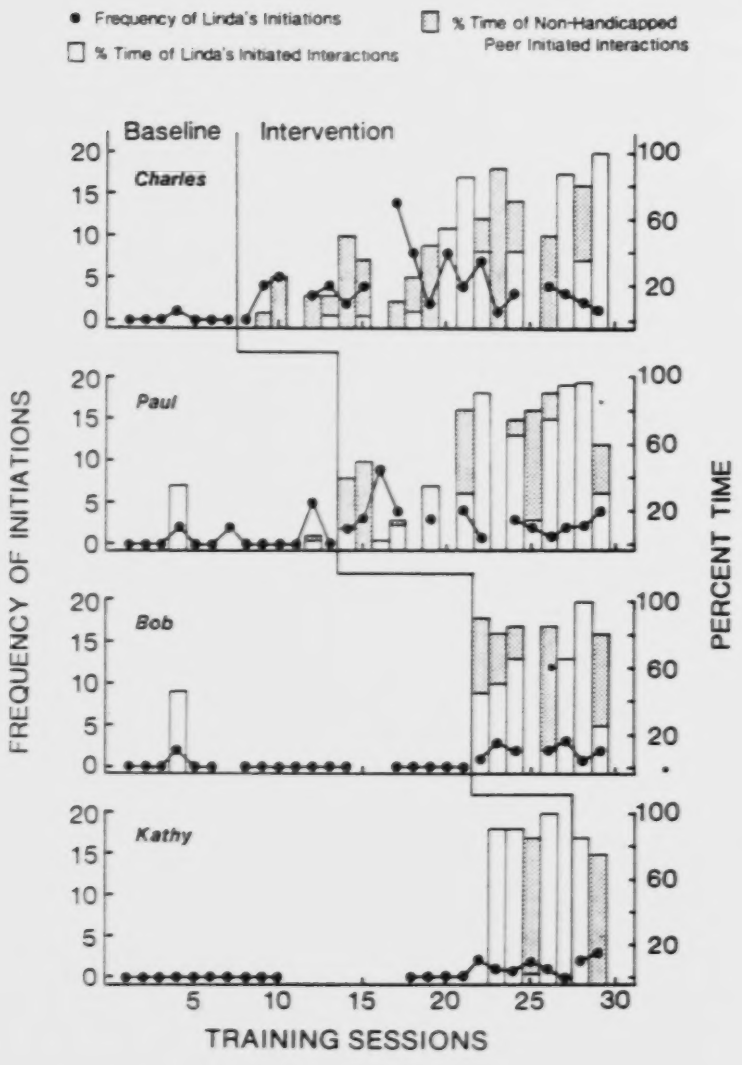

Figure 1. *Frequency of Linda's initiations and the percentage of time engaged in interactions in the training setting.*

After 6 days of intervention with Charles, the intervention also was applied during training sessions with Paul as the peer. There was an immediate increase in Linda's initiations to Paul and an immediate, substantial increase in their interactions. The intervention with the third peer, Bob, began on session 22. Again, there was a moderate increase in Linda's initiations and an immediate, substantial increase in their interactions. Additionally, the percentage of time which they spent in extended interactions appeared more stable than that with the previous 2 peers, Charles and Paul. Concurrent with Linda's increased

social exchanges with Bob, there were small increases in her initiations to Kathy and very large increases in their extended interactions without the application of intervention procedures to this fourth subject-peer dyad. When teacher prompting and praising was finally applied to this dyad at session 26, there was no discernible increase in Linda's initiations and only a slight, temporary increase in the duration of their extended interactions.

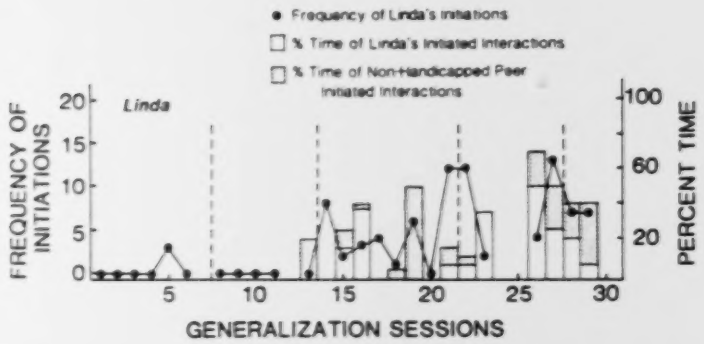

Figure 2. *Frequency of Linda's initiations and the percentage of time engaged in interactions in the generalization setting. (The dashed vertical lines indicate the onset of interaction phases in the training setting.)*

Generalization Setting

The line graph in Figure 2 shows the frequency of Linda's initiations to the nonhandicapped peers and the bar graph shows the percentage of time she spent in interaction with the nonhandicapped peers in the later occurring generalization setting. These data indicate that Linda rarely initiated to the nonhandicapped peers over the first 13 generalization sessions. This corresponded to baseline and the initial intervention with Charles in the training setting. Once intervention was applied to Linda with both Charles and Paul in the training setting, there was an immediate though somewhat variable increase in her initiations to and interactions with the nonhandicapped peers in the generalization setting. The percentage of interaction resulting from Linda's initiations was quite variable and declined over the last three generalization sessions. Analysis of Linda's initiations to her autistic classmates during the generalization sessions revealed that they occurred sporadically and that they did not exhibit an increase or decrease over the generalization sessions. Further analyses of Linda's initiations indicated that 83% of her initiations to nonhandicapped peers were followed by a positive response whereas 38% of her initiations to autistic classmates resulted in a positive response. Linda positively responded to 88% of nonhandicapped peers' initiations to her and to 67% of her autistic classmates' initiations.

DISCUSSION

The results of this study provide further support for multiple peer exemplar training as a tactic to promote generalization of newly-acquired social responses in withdrawn, handicapped children. When Linda was taught to increase her initiations to 1 and then 2 peers in the training setting, her initia-

tions to and interactions with the remaining untreated peers remained within baseline levels. Once social initiation training was applied to Linda with the 3rd peer, however, Linda began to increase her initiations to and interactions with the 4th, untreated peer. Ideally, we would have extended Linda's baseline with the 4th peer and/or introduced additional untrained peers to more precisely evaluate the strength of this generalization. Unfortunately, practical constraints of time and access to such peers prevented this further analysis. The authors are currently replicating this study with 2 other autistic children and 8 nonhandicapped peers from the same school, and intend to complete a more extensive analysis of multiple peer exemplar training.

The present data are in agreement with and extend previous investigations which have suggested the efficacy of multiple exemplar training in facilitating generalized social responding (Gaylord-Ross et al., 1982; Lancioni, 1982; Stokes et al., 1974). The concurrent nature of multiple peer training and the use of other simultaneously applied procedures in two of the prior studies (Gaylord-Ross et al., 1982; Lancioni, 1982) did not permit a clear analysis of multiple peer training effects. The present study, like that of Stokes et al. (1974), sequentially introduced training across social stimuli and allowed a more precise determination of the conditions under which generalization was obtained. In contrast to Stokes et al. (1974), who used multiple adult experimenters as the training stimuli, the present investigation documented the effectiveness of the multiple exemplar approach when nonhandicapped peers were employed as the training stimuli.

Equally interesting were the findings regarding across-setting generalization. Once training was begun with the 2nd peer in the training setting, Linda's initiations and interactions in the free play generalization setting also began to increase. Virtually all of this across-setting generalization was accounted for by the increase in her social exchanges with the nonhandicapped peers rather than her autistic classmates who were also present at this time. Indeed, Linda's initiations to the autistic children were sporadic and, especially when compared to her initiations to nonhandicapped children, very unsuccessful. As one might expect, the nonhandicapped peers were much more likely to respond positively to Linda's social overtures and interact with her than were the autistic peers. These results support Strain and Shores (1983) who, in responding to Gresham (1982), indicated that integrated settings are more facilitative than segregated settings in developing social interaction.

Across-setting generalization did not seem to be a result of simply teaching Linda new, effective social responses. Previous social interaction training studies with autistic children have reliably produced increased social initiations by autistic children to a single peer but have not found across-setting transfer of these initiations (Strain, Kerr, & Ragland, 1979). Similarly, in the present study, setting generalization did not occur immediately even though her initiations increased quickly and substantially when the training began with the 2nd nonhandicapped peer. Rather, we believe the results indicate that setting generalization was attained with Linda as a function of multiple peer exemplar training.

Generalization of behavior change has been a long-sought-after but unpredictable outcome of behavioral interventions. The results of this study should be viewed both cautiously and optimistically. Since the present investigation was conducted with a single subject, there is an obvious need for replication. There have been positive reports of generalization which, so far as we know, have yet to be replicated (e.g., Strain, 1977). Also, in spite of the fact that the

generalization setting was a developmentally integrated one and was arranged to promote "free choice" of activities, it was still a specially arranged situation and included the peers from the training setting. Generalization studies such as this must ultimately evaluate the transfer of training effects to even more naturalistic conditions. The present study, however, is one of an increasing number (Gaylord-Ross et al., 1982; Stokes et al., 1974) which support multiple exemplar training as an integral part of an emerging technology of generalization and as a means of better understanding generalization processes.

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Assessment and Treatment of Self-Stimulation in Severely Behaviorally Disordered Children

John W. Maag, Bradford T. Parks, and Robert B. Rutherford, Jr.

ABSTRACT

The treatment of self-stimulation is presented from a conceptual framework, based on assessment of the functional interaction between self-stimulatory behaviors and the antecedents and consequences of these behaviors. This framework represents a departure from conventional approaches where strategies for choosing interventions to suppress self-stimulation have been based upon factors relatively independent of the child's behavior, such as the need to evaluate various intervention procedures or the preference of the intervener. However, because the behavioral repertoires of severely behaviorally disordered children are frequently neither simple nor well understood, greater emphasis should be placed upon the analysis of self-stimulatory behaviors prior to intervention. Interventions can then be derived based upon a functional analysis of the relationship between self-stimulatory behavior and its antecedents and consequences. The emphasis on functional assessment of self-stimulation is unique in that the literature shows virtually a complete lack of behavioral analysis prior to treatment (Romanczyk, Plienis, Flachs, & Spettell, 1981).

This paper begins with a discussion of definitions and hypothesized etiologies of self-stimulation in severely behaviorally disordered children. Assessment is then discussed as a means for identifying the sensory reinforcement or environmental factors which influence the maintenance of self-stimulation. Finally, treatment procedures are presented within the framework of the functional data gathered during assessment.

According to Romanczyk, Kistner, and Plienis (1982), self-stimulation is defined as "any rhythmic, repetitive motor behavior that is persistent and bizarre" (p. 191). The various forms of self-stimulatory behavior are numerous, but some common examples are body-rocking, finger manipulations, arm and head waving, and eyeball movements. Sometimes children use environmental objects such as twirling feathers or twigs, spinning objects, or shredding paper. The term *self-stimulation* may not describe adequately the variety of maladaptive, repetitive behaviors of some severely behaviorally disordered children. That is, self-stimulation implies that the individual is performing the behavior for the sensory feedback it provides, and thus assumes a functional relationship that may not as yet have been demonstrated. An alternative term is *stereotypy* which typically refers to repetitive, topographically invariant motor acts or sequences for which reinforcing or controlling stimuli are unknown (Baumeister & Forehand, 1973). While stereotypy includes self-injurious behavior, it may be considered similar to self-stimulation since these behaviors are both repetitive and maladaptive. Self-stimulation is the term used here since it is more descriptive than stereotypy.

Self-stimulation in Severely Behaviorally Disordered Children

Self-stimulation has been observed in approximately two-thirds of the institutionalized retarded population (Berkson & Davenport, 1962; Kaufman & Levitt, 1965), and is considered one of the defining characteristics of autism (Rimland, 1964; Schreibman, Koegel, Charlop, & Engel, 1983). Perhaps the most differentiating aspects of self-stimulation in the severely behaviorally disordered are the intensity, frequency, and the varying topographies of self-stimulation. Often, it is the most frequent behavior displayed by severely behaviorally disordered children (Kaufman & Lewvitt, 1965). Another characteristic of self-stimulation is that it does not appear to be differentially associated with any particular group of developmentally disabled children. For example, these behavior patterns have been observed in autistic, severely retarded, schizophrenic, and neurologically impaired children.

Despite the difficulty in obtaining generalized, durable suppression of self-stimulation among many classes of severely behaviorally disordered children, a number of positive "side effects" have been observed when self-stimulation is even temporarily reduced. Risley (1968) and Lovaas and Newsom (1976) discuss various prosocial and attentional behaviors that are increased with the suppression of self-stimulation. Others have reported that discrimination learning (Koegel & Covert, 1972) and appropriate play (Koegel, Firestone, Kramme, & Dunlap, 1974) may increase when self-stimulation is decreased. Lovaas, Litrownik, and Mann (1971) observed that previously established stimulus control was disrupted during episodes of self-stimulation, yet was recovered when self-stimulation was absent. Solnick, Rincover, and Peterson (1977) found that a reinforcing effect of timeout on tantrum behavior was due to the opportunity to engage in self-stimulation during the timeout interval, and also that tantrums were eliminated when self-stimulation was suppressed contingent upon tantrums.

Motivational Theories Accounting for Self-Stimulation

Since self-stimulation is common among severely behaviorally disordered children, and interferes with many classes of adaptive behavior, it appears worthwhile to investigate the variables that may maintain and support this behavior. Various motivational theories have been proposed to account for self-stimulatory behavior. For example, dysfunctioning connections between the vestibular system and the cerebellum or brainstem (Ornitz, 1974), frustration (Forehand & Baumeister, 1971), social deprivation (Harlow & Harlow, 1971), superstitious conditioning (Spradlin & Girardeau, 1966), overarousal (Ritvo, Ornitz, & LaFranchi, 1968), underarousal (Ellis, 1973), and alternating states of arousal (Sroufe, Steucher, & Stutzer, 1973) have all been investigated. At present, none of these hypotheses can be either discarded or viewed as a valid explanation of the etiology or maintenance of self-stimulatory behavior (Newsom, Carr, & Lovaas, 1977). It appears, however, that two theories provide a parsimonious explanation of much of the literature on self-stimulation. The first is the notion that self-stimulation is operant behavior maintained by its sensory consequences (Azrin, Kaplan, & Foxx, 1973; Rincover, Newsom, Lovaas, & Koegel, 1977). For example, repetitive finger flapping might be conceptualized as being maintained by the specific proprioceptive feedback it produces, while persistent delayed echolalia, on the other hand, may be motivated by auditory feedback. A substantial amount of data has accumulated that

demonstrates such a functional relationship between operant behavior and its sensory consequences (Hunt & Quay, 1961), an operation first described as "sensory reinforcement" (Kish, 1966).

The second notion is that self-stimulation represents a class of operant behavior maintained by external or social consequences such as attention, praise, comforting, or the termination of an uncomfortable or aversive situation. A study reported by Frankel, Freeman, Ritvo, and Pardo (1978) showed that self-stimulation decreased in high-functioning autistic children and increased in low functioning autistic children as the complexity of their environments were manipulated. Romanczyk et al. (1982) noted, however, that the relationship between these variables is very complex. For example, decreases in self-stimulation were noted when novel stimuli were presented (Davenport & Berkson, 1963), whereas self-stimulation increased when developmentally disabled children were presented with loud sounds (Berkson & Mason, 1963). Although most studies indicate that self-stimulation increases as a result of environmental complexity (e.g., Hutt & Hutt, 1965), the identification and assessment of these external variables could be helpful in the development of intervention procedures designed to decrease self-stimulation.

ASSESSING SELF-STIMULATION

The purpose of assessment is to determine whether self-stimulatory behavior is maintained by environmental stimuli or by sensory consequences. To identify these variables, each instance of self-stimulation should be assessed as it relates to two factors. First, it is important to determine the antecedents of the behavior. Instances where self-stimulation is preceded by the child being upset or agitated, or where demands are placed on the child, may be noted. For example, a child may engage in whining, exhibit frustration through behaviors such as biting or hand-to-head banging, or become disruptive before self-stimulating. Instances of demands that may precede self-stimulation include the child being instructed to engage in a low probability behavior such as being told to clean up a mess, take a bath, or make the bed or, conversely, the child may be instructed to terminate high probability behaviors such as eating or playing.

The second factor to examine is the external consequences of self-stimulation. It is important to analyze the consequences of the child's self-stimulatory behaviors with regard to the positive or negative stimuli received from significant others (e.g., parents or teachers). The stimuli may appear to be positive, such as directly comforting the child, or negative, such as when a parent yells at, shakes, or forcibly restrains the child who engages in self-stimulatory behaviors. It is important to note whether self-stimulatory behavior increases or decreases contingent upon these consequences. Self-stimulation may also be motivated by different environmental factors in different situations. Experience has shown that if teachers or clinicians react to certain self-stimulatory behaviors by terminating interactions that the child perceives as aversive (e.g., task demands), then self-stimulation will be negatively reinforced and may come to function as a means of ending future aversive exchanges.

If there are identifiable external effects, it can be assumed that self-stimulation is probably environmentally maintained. However, if there are no apparent environmental effects, then self-stimulation may be motoviated by sensory reinforcement. That is, the individual may engage in self-stimulatory behavior even though he or she is not upset and the behavior receives no

apparent positive or negative reaction from others. If the child self-stimulates during nonstructured times, and appears content to be alone, then it is possible that the behavior has no external cause and/or effect. While teachers or parents can often identify the apparent external causes or effects of a child's self-stimulatory behavior, the sensory reinforcers which may maintain self-stimulation are often complex and difficult to determine solely from direct observation in the child's natural environment. It then may become necessary to directly test for the possible sensory consequences maintaining the behavior. For example, a child may engage in compulsive light switching because it is reinforcing to either watch the light go on and off, or to hear the switch clicking. By systematically masking first visual and then auditory feedback, it is possible to determine whether either of these sensory consequences is maintaining the behavior. If, when the light is disconnected, the child still engages in the behavior, it is possible that the auditory feedback is maintaining the behavior. However, if the behavior is reduced in frequency by disconnecting the light, it may be hypothesized that visual feedback maintained the behavior. If the behavior persists, even when both modalities are masked, it may be necessary to consider other sensory modalities or other external environmental factors, (e.g., attention from parents or teachers for switching the light). Through this assessment process, it may be possible to determine whether self-stimulation is environmentally maintained or motoviated by sensory consequences. This information is essential when developing appropriate treatment programs.

TREATMENT OF SELF-STIMULATION

Although most people engage in self-stimulatory behaviors to some extent, these behavior patterns in severely behaviorally disordered children are different in that they occur much more frequently and the topographies tend to be invariant. In some cases it may comprise as much as 90% of the child's observed behavior (Romanczyk et al., 1982). These children also tend to be unresponsive to their environments and their self-stimulatory behaviors are generally socially stigmatizing. Such behaviors not only look bizarre, but also result in reduced social contact with others, and often inhibit educational and/or psychological treatment.

Manipulation of Consequences

Reports of behavioral treatments for the suppression of self-stimulation indicate that these behaviors can be controlled, to varying degrees, by the contingent presentation or removal of positive or negative stimuli. Baumeister and Forehand (1973) and Hobbs and Goswick (1977) have systematically reviewed a number of treatment procedures for suppressing self-stimulation. Several of these treatment procedures are presented as they relate to the assessment process of evaluating the environmental and/or sensory consequences associated with self-stimulation. Self-stimulation may occur at greater rates in the presence of adults. For example, these behaviors may result from adults presenting task demands upon the child. This may establish adults as discriminative stimuli for self-stimulation, indicating that the behavior is maintained by external consequences. In this instance, response contingent timeout might be considered as a treatment procedure. Timeout consists of interrupting the availability of reinforcement for brief periods contingent upon the self-stimulatory behavior. There are several ways to program timeout: (a) removal of

materials; (b) removal of adult attention; (c) exclusion from ongoing activities; and (d) seclusion from ongoing activities (Nelson & Rutherford, 1983; Rutherford & Nelson, 1982).

In related studies, Harris and Wolchik (1979), Laws, Brown, Epstein, and Hocking (1971), and Sachs (1973) reduced children's self-stimulation by having an attending adult turn away from the child whenever the behavior occurred. Luiselli (1975) decreased a retarded child's rocking behavior by excluding the child from ongoing activities for a brief period whenever he rocked. Finally, Pendergrass (1972) reduced self-stimulation of retarded individuals by placing them in seclusion timeout for 2 minutes each time they self-stimulated.

It should be noted that timeout may not be an effective treatment if self-stimulation is maintained by such environmental factors as task avoidance or escape. To assess these factors, it is important to observe whether high levels of self-stimulation are displayed during teaching sessions rather than during nonteaching sessions. This may indicate that self-stimulatory behavior is negatively reinforced through task avoidance or escape. For example, Durand and Carr (1983) employed a timeout procedure which consisted of the removal of adult attention and all task materials for 10 seconds contingent upon self-stimulation. Results indicated that the rates of self-stimulation increased, suggesting that timeout from the task may have served as a reinforcer. Self-stimulation that is maintained by negative reinforcement has been effectively treated using *escape-extinction* (Carr, Newsom, & Binkoff, 1980) which requires simply working through the activity, thus denying the child the opportunity to avoid or escape the task or the demands made by the adult. Providing a high density of reinforcement for nonstimulatory behaviors would also be indicated in an attempt to reduce the likelihood of the child engaging in escape and avoidance behavior.

If self-stimulation remains unresponsive to these techniques, the application of more aversive procedures might be considered. The immediate suppression of self-stimulation has been achieved by the use of contingent electric shock (Baumeister & Forehand, 1972; Lovaas, Schaeffer, & Simmons, 1965) and slapping (Koegel & Covert, 1972; Koegel et al., 1974). However, from an ethical standpoint, the use of these aversives should be the treatment of last resort. Also, because aversive stimuli generally must be applied at high intensities to be maximally effective (Azrin & Holz, 1966), treatment may be extremely emotionally arousing for both the child and the practitioner. These procedures are often distasteful to those who must apply them and in some settings the use of aversive control is not allowed (Repp & Deitz, 1974). Finally, negative side effects such as agitation, aggression, escape, and avoidance, as well as decreases in social behavior can occur with the application of aversives (Mayhew & Harris, 1978; Rutherford & Neel, 1978). However, it is important to note that positive side effects — most notably increases in eye contact, affection, smiling, and cooperative behavior — have also been associated with aversive stimulation (Lichstein & Schreibman, 1976).

With regard to the type of aversive stimulation used, alternatives to electric shock and slapping should be employed since these techniques are rarely acceptable in educational or psychiatric settings. Available alternatives range from the contingent application of water squirts (Robinson, Hughes, Wilson, Lahey, & Haynes, 1974), lemon juice (Cook, Altman, Shaw, & Blaylock, 1978), ice (Drabman, Ross, Lynd, & Cordua, 1978), mouth wash (Pollow, McPhee, Luiselli, & Marholin, 1980), and visual screening (McGonigle, Duncan, Cor-

disco, & Barrett, 1982). These stimuli are generally less intrusive or politically arousing than shock or slapping, and, with proper sanction and monitoring, are acceptable in most settings.

Aversive procedures may also be employed when self-stimulation is motivated by its sensory consequences. In this instance, the sensory feedback the child receives from self-stimulating may not be sufficiently reinforcing to maintain the behavior when an aversive stimulus is applied (e.g., electric shock or slaps). Since the same ethical considerations previously mentioned pertain, a useful alternative to the application of aversive stimuli is overcorrection (Foxx & Azrin, 1973). In contrast to other punishment techniques, the rationale for this technique is that the individual is trained to correct the environmental effects of his or her misbehavior (restitution) or to practice more appropriate types of responding (positive practice). A description of these procedures is provided in Foxx and Azrin (1973). Overcorrection has been demonstrated to be effective in suppressing stereotyped hand movements (Epstein, Doke, Sajwaj, Sorrell, & Rimmer, 1974; Luiselli, Pemberton, & Helfen, 1978; Maag, Rutherford, Wolchik, Kardash, & Parks, 1983), masturbation (Luiselli, Helfen, Pemberton, & Reisman, 1977), object-transferring (Martin, Weller, & Matson, 1977), head-weaving (Ollendick, Matson, & Martin, 1978), and object-mouthing (Doke & Epstein, 1975).

While overcorrection is one of the most effective treatment techniques in reducing self-stimulation, it presents several practical difficulties. First, although short durations of overcorrection have been effective in reducing self-stimulation (Harris & Wolchik, 1979), longer treatment durations are often required (Maag et al., 1983) to achieve near total suppression. As longer durations of overcorrection are required, implementation of the procedure may become quite time consuming within the treatment setting. Second, since overcorrection often requires physical guidance, it may not be possible to implement with highly resistant or physically imposing individuals. Finally, little generalization of suppression to other settings has been observed (Coleman, Whitman, & Johnson, 1979; Harris & Wolchik, 1979; Maag et al., 1983; Rollings, Baumeister, & Baumeister, 1977) as a result of overcorrection.

Sensory Extinction

A functional approach to treating self-stimulatory behaviors which are maintained by their sensory consequences is sensory extinction (Rincover, 1978). Here the hypothesized sensory reinforcer present in the particular topography of self-stimulation is removed. Rincover (1978) implemented this procedure in idiosyncratic ways based upon the topography of the self-stimulation. For example, carpeting was installed atop a table upon which one subject spun plates in order to mask auditory feedback resulting from this topography of self-stimulation. In a later study, Rincover, Cook, Peoples, and Packard (1979) implemented sensory extinction procedures while training subjects to play with toys. After training, sensory extinction was discontinued. Subjects were then tested to see which toy they preferred and how much they engaged in self-stimulation. The results indicated that the rate of self-stimulation was reduced for each subject and that subjects preferred the toy that provided the sensory reinforcement similar to the sensory reinforcement assumed to be present in the child's predominant topography of self-stimulation.

Sensory extinction is a procedure in which multiple components are altered at the same time. Response suppression may be due to either the removal of

sensory reinforcement, or to the increased effort required to perform self-stimulatory behavior. Most sensory extinction studies fail to separate out the necessary and sufficient variables in the procedure. For example, in her review of sensory reinforcement, Murphy (1982) indicated that it is still unclear as to the extent to which stimulus modality is an important factor. Maag, Wolchik, Rutherford, and Parks (in press) examined the effects of sensory extinction procedures across topographically similar and dissimilar behaviors in producing nontargeted behavioral change. The results of their first experiment indicated that, for one child, two topographically similar behaviors (e.g., clapping and gazing, which both involved movement of the hands) were maintained by somewhat different modalities. More specifically, masking visual consequences produced significant reductions for clapping, but minimal change for gazing. However, masking kinesthetic consequences produced significant reductions in both behaviors. For a second child, nontargeted behavior change was not observed when sensory extinction procedures were implemented with two topographically dissimilar behaviors (e.g., string-waving and object-mouthing). In a second experiment, generalization of sensory extinction effects was assessed using three behaviors whose consequences involved kinesthetic feedback. Results indicated that, although the specific modality remained constant, different topographies of the three behaviors influenced the varying degrees of suppression achieved. The overall findings of this study illustrate that multiple sensory components are often involved in self-stimulatory behavior, and that isolating these sensory components may be impractical and/or time consuming. Maag et al. (in press) also noted that a cumbersome apparatus was necessary in order to mask some types of sensory feedback. This might greatly restrict the child's ability to participate in activities outside of the educational or clinical setting and may also be socially stigmatizng.

Differential Reinforcement

In contrast to the preceding strategies, a less intrusive treatment of self-stimulatory behavior is differential reinforcement of other (DRO) behavior (Dietz & Repp, 1983). Studies investigating the effectivenes of DRO have produced equivocal results. For example, Lovaas, Litrownick, and Mann (1971) and Baumeister and Forehand (1971) found that when children were trained and reinforced for performing alternative responses, rates of self-stimulatory behaviors decreased. Durand and Carr (1982) used differential reinforcement of communicative (DRC) behavior to suppress self-stimulation. This procedure consisted of teaching children appropriate assistance-seeking responses (e.g., "help me") when faced with a difficult task. Training these verbal responses resulted in decreases in self-stimulation. By comparison, Azrin, Kaplan, and Foxx (1973) found that when children were reinforced for not exhibiting self-stimulatory behaviors, only half of their subjects exhibited response suppression. Harris and Wolchik (1979) found that for one child self-stimulation increased, the rates of two children remained the same, and the rates of another subject slightly decreased contingent on DRO. Finally, Mulhern and Baumeister (1969) failed to obtain clinically significant results with DRO procedures.

While DRO applied in isolation has produced equivocal results, it is an integral component of treatment programs and should be employed in conjunction with other techniques regardless of whether self-stimulation is maintained by environmental factors or motivated by sensory reinforcement. The suppression of self-stimulation becomes academic and is of minimal educa-

tional value unless the individual is taught to exhibit incompatible, socially appropriate behaviors.

Self-stimulatory behaviors pose serious problems of adaption for significant numbers of severely behaviorally disordered children. Although a number of theories have been reviewed, the origin and function of these repetitive behaviors remain a mystery. Varying degrees of suppression have been achieved using timeout, escape-extinction, aversive stimulation, overcorrection, sensory extinction, and differential reinforcement.

CONCLUSION

In the preceding discussion, assessment and treatment of self-stimulation is viewed within an integrated framework. From this standpoint, assessment is considered a means of identifying the sensory reinforcement or environmental factors which influence the maintenance of self-stimulation. Treatment interventions are then derived from this assessment. However, it is important that self-stimulatory behavior not be viewed as static; that is, it should be recognized that such behavior is constantly affected by past and present reinforcement contingencies (Durand & Carr, 1982). This recognition suggests that while some self-stimulatory behaviors may have been maintained initially by sensory reinforcement, their continued exposure to different environmental contingencies may have resulted in long term behavior maintenance by these environmental factors. For example, Durand (1982) found that self-injurious behavior in one individual was maintained by both sensory feedback and escape from demands. These data lend credence to the speculation that the functional relationship of self-stimulation to the environment may not necessarily be constant. Romanczyk et al. (1982) noted that topographically identical behaviors, such as head-weaving and head-banging, may fluctuate with respect to their relationship with the environment (e.g., escape-avoidance, sensory stimulation, or respondent conditioning). Thus the environment probably exerts at least partial control over these behaviors, a consideration that must be taken into account when designing interventions.

Since self-stimulation often fluctuates with respect to changes in settings (e.g., Baumeister, MacLean, Kelly, & Kasari, 1980), generalization of suppression from one setting to another is likely to be minimal. Most behavioral treatment programs for self-stimulation tend to be specific to the responses exhibited in the settings in which treatment is applied, and to persons who implement the treatment (Coleman, Whitman, & Johnson, 1979). Therefore, generalization of treatment effects often does not occur. Traditionally, generalization means that target behaviors can be influenced by similar stimuli in somewhat different environmental settings. Generally, attempts to empirically establish this form of generalization have been unsuccessful with severely behaviorally disordered children (Browning & Stover, 1971). In order to establish generalization it is often necessary to treat each self-stimulatory response in all settings. This appears to be a very limited definition of generalization. In fact, rather than generalization, this procedure seems to only be "programing behavior in a coordinated manner." Although an elusive goal, generalization of behavior change in severely behaviorally disordered children is essential to obtain maximum treatment effects. Zifferblatt, Burton, Horner, and White (1977) found that certain behaviors treated in one setting generalized to another setting when children were provided with an opportunity for daily practice of the desired behaviors. They also found that the greatest amount of

generalizaton occurred with the most effective treatment. However, not all studies support this finding (e.g., Maag et al., 1983). Clearly, more data are required with regard to methods for promoting generalized response suppression with behaviorally disordered children.

In addition to lack of generalization of treatment effects to other settings, the effects of behavioral treatment programs often do not persist once treatment is discontinued. To ensure maintenance, treatment contingencies must often remain in effect even after response suppression has been achieved. However, this is not always practical. For example, a parent of a severely behaviorally disordered child may want to be able to take the child into public settings but is concerned about the child's high rates of self-stimulatory behavior. Still, to extend treatment contingencies across time settings may be difficult for the parent to implement and may be socially stigmatizing to the child. However, there are some strategies for facilitating maintenance and generalizaton of treatment effects across time which can be implemented during the course of treatment (Jones & Kazdin, 1975; Luiselli, Colozzi, & O'Toole, 1980). For example, if self-stimulation has been reduced through differential reinforcement, it may be possible to thin the schedule of reinforcement, delay reinforcer availability, and/or switch from tangible to social reinforcers to facilitate generalization. If physical aversives, timeout, or overcorrection procedures are applied to reduce self-stimulation, a verbal reprimand (e.g., "No!") may be paired with these contingencies so that eventual behavioral reduction can be maintained by delivering just the reprimand (Foxx & Azrin, 1973).

Although gaining response control is the necessary first step in developing behavioral treatment programs for self-stimulation, the deliberate programing of generalization and maintenance are crucial factors in determining the overall significance of intervention programs. This requires careful behavioral analysis of self-stimulatory behaviors in order to implement effective and long-lasting treatment programs.

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Physical Intervention with Emotionally Handicapped Students: Issues and Best Practices

Kathy L. Ruhl, Charles A. Hughes, and Lloyd G. Wimberley

Aggression is an anticipated aspect of normal human development and as long as it remains within socially accepted limits it presents no major problem. There is, however, evidence to suggest that violent, disruptive behavior of children and adolescents, especially as it occurs in educational settings, has become a major concern of parents, students, and educators in the United States (Ruhl & Hughes, 1982). Furthermore, the results of a study conducted by Ruhl (in press) indicate that teachers of classrooms serving students identified as emotionally handicapped (EH) are confronted with both physical and verbal aggression frequently enough to support the need for training these teachers in both preventive and reactive strategies. Several issues surround such training, especially as they relate to the use of physical intervention. These issues, as yet unresolved, have not prevented individuals concerned with student aggression from developing techniques appropriate for use in emotionally handicapped classrooms, however. The preservice trainer or inservice planner responsible for selecting relevant and sound training in this area must first decide whether to include such training and if so, what training. Issues and best practice interventions are the focus of this paper and the discussion has been organized accordingly. Additionally a brief listing of programs available to the consumer may be found at the end of this article.

ISSUES

Issues surrounding the use of physical intervention fall within two overlapping categories, issues of training and issues of implementation. Issues of training encompass those concerns relevant to the inclusion and content of programs designed to prepare teachers to cope with aggressive students. Issues of implementation pertain to the ethical and practical use of particular physical intervention strategies.

Issues of Training

Aggression and violence in schools may be considered by some individuals to be a sensitive topic, one which is best dealt with through the head-in-the-sand method of ignoring with the hope that it will go away, while others prefer to confront the problem head-on. The question of whether to include specific training in strategies for coping with aggression reflects in some part this issue. For example, there is evidence to suggest that professional teacher trainers do not agree on the teacher's role when working with aggressive emotionally handicapped students after the best possible strategies have failed to ward off an aggressive outburst. It is obvious, based upon a discussion which occurred

in May 1979 at the Advanced Institute for Trainers for Seriously Emotionally Disturbed Children and Youth held at the University of Minnesota (Wood, 1979), that the issue of teacher use of physical restraint raises differing viewpoints. Some individuals objected to any use of physical intervention based on a concern with modeling the use of physical force and, additionally, encouraged the use of outside law enforcement agencies in confronting the older, physically aggressive student. Conversely, others suggested that "nonpunitive physical restraint" was indicated when intervening with certain individual students. This latter attitude may have been motivated by a perspective on the therapeutic use of physical restraint such as that noted by Brickwood (1978) or the realization that physically aggressive outbursts cannot always be successfully circumvented. In spite of disagreement on the inclusion of physical restraint training as a competency for EH teachers, most participants in the discussion did agree that teachers should be prepared emotionally to confront potential or actual physical aggression and be skilled at least in appropriately defending themselves. Furthermore, the group suggested that EH teachers should be competent in analyzing aggressive incidents to identify the antecedent conditions leading to such episodes in order to reduce their contribution to its future occurrence.

Further evidence of the lack of professional agreement regarding the training of teachers in physical intervention strategies is seen in the preliminary findings of Hughes, Schmid, and Ruhl (1984). These authors surveyed departments of special education in teacher training institutions as to components included in their various teacher preparation courses. Of those undergraduate and graduate special education departments responding to the questionnaire, approximately half acknowledged requiring physical intervention training in their coursework. It is possible that this lack of consistency among teacher training institutions as to the inclusion of physical intervention strategies as a component of at least one class is an indication of professional teacher educators' discomfort with this area. There may be a concern that the teacher trained in these techniques will use them without first attempting other nonphysical strategies. It is also possible that those individuals most influencing the development of teacher competencies lack sufficient personal teaching experience to support the need for attention to this area and/or lack competency in the relevant skills.

Many school systems have sought to resolve the training issue for themselves. Of the EH teachers surveyed by Ruhl (in press), 80% indicated that they had received some training in techniques for dealing with student aggression. Of these, the majority (69%) had been trained through school system sponsored inservice.

In preservice and inservice situations, in which the issue of whether or not to provide training in physical intervention has been settled in favor of including such training, there remains the issue of which techniques to present and how best to present them. Ruhl (in press) identified a number of components of training experienced by teachers of emotionally handicapped students. The following is a list of those components: nonaggressive physical restraint, aggressive physical restraint, methods of escaping a student hold, methods of deflecting a student attack, methods of approaching an aggressive student, methods of breaking up a fight, team restraints, and preventive classroom strategies. The latter is the most commonly included training component followed closely by nonaggressive physical restraint.

Among the many techniques of physical intervention available to the educator, there are strategies ranging form purely self-defensive measures, which may ultimately result in harming the physically aggressive student, to techniques developed with protection in mind for both the intervening individual and the aggressive student. The offensive nature of some physical intervention techniques may be acceptable to individuals whose concern is limited to self-protection. It is our bias that in general, concern for the well-being of the aggressive emotionally handicapped student, in addition to protection of others, must be a priority and the components of any program should be evaluated accordingly.

Related to the content of training issue is the issue of methodology. It is obvious from the work of Ruhl (in press) and of Hughes et al. (1984) that training in specific methods for coping with aggression may consist entirely of a lecture format or may involve lecture, demonstration, and practice. Smith (1980) asserted that it is critical for professionals using physical restraint techniques to be thoroughly trained in their appropriate use. This may imply that a lecture format is inadequate for competency training in this area. However, teacher training institutions apparently favor delivery of information on physical intervention through a didactic presentation (Hughes et al., 1984) with the majority of inservice reflecting a more experiential approach (Ruhl, in press).

In summary, the issues of training in methods of physical intervention are centered first around the inclusion of such methods in a training program. Once this issue has been resolved, discussion of the most appropriate techniques to include, coupled with a decision on method of presentation, must follow. These issues may possibly be resolved by asking teachers in the field for their expert opinion. Ruhl (in press) did ask the teachers surveyed if teachers of emotionally handicapped students should have specific training in methods of coping with aggressive students. Of the responding teachers, 99% asserted that such training was desirable.

Issues of Implementation

To initiate physical intervention strategies without first considering several ethical and practical issues would be foolhardy for the classroom teacher. Concerns such as legal and administrative support, environmental factors, matching the intervention to the aggressive behavior, and the potential ramifications of physical intervention all deserve careful consideration. Each of these will be addressed briefly in this section.

Legal and administrative support, or lack of it, can determine the success or failure of implementation of physical intervention strategies. The teacher who uses methods that are condoned by school administrators and parents, appear rational and moderate to the courts, and are congruent with state guidelines governing the use of such methods does so anticipating administrative support should someone contest such intervention. Conversely, those teachers who ignore these factors do so with less assurance and leave themselves open to possible legal action.

Questions and answers relevant to environmental concerns in the use of physical intervention may not be identical across settings (e.g., resource room vs. self-contained school) but deserve thoughtful attention as they are relevant to a given situation. Smith (1980) in discussing issues surrounding physical restraint and timeout noted four such questions. With minor adaptations three of these become pertinent to the present, more general discussion of physical

intervention. These issues are as follows:

1. Assuming one has a choice, where can physical intervention be implemented?
2. What are the school-level consequences to aggressive students?
3. How much support, both physical and emotional, will be available to the teacher should physical intervention be warranted?

A fourth question may be added to this list: Is physical intervention an effective strategy for this behavior, in this setting?

A third issue in implementation is the appropriateness of physical intervention for the type and/or stage of aggression. For example, physical intervention may be inappropriately used by an individual overreacting to an episode of verbal aggression, thus exacerbating the situation (Crisis Prevention Institute, 1983; Ruhl & Hughes, 1982). On the other hand, verbally aggressive remarks from a specific student may be consistent precursors to an episode of self-abuse and as such may mandate rapid, effective physical intervention. The key with this issue is familiarity with one's students and their patterns of behavior.

The potential ramifications of implementing physical intervention strategies must be considered preceding, concurrent with, and subsequent to physical intervention, as implementation of such measures may contaminate the teacher-student relationship. Several reasons for such contamination have been noted by Ruhl and Hughes (1982). Five of these are as follows:

1. Restraint of a male student by a female teacher may negatively affect the student's self-image.
2. A male teacher's physical intervention with a male student easily becomes a power struggle in which no one ever really wins.
3. The aggressive student, intervening teacher, and observers of the incident experience feelings of stress and/or disgust.
4. Students and teachers may develop physical or psychological illnesses.
5. Someone may be seriously injured.

If the teacher considers these, and addresses them as appropriate, while using nonaggressive physical intervention strategies, the possibility of a contaminated teacher-student relationship should be decreased.

Issues of implementation such as administrative support, environmental concerns, matching intervention to behavior, and consequences of physical intervention may be somewhat tempered through the use of certain student-centered strategies or exacerbated by the use of teacher-centered methods. In view of this, a discussion of "best practices" in the use of physical intervention is warranted and included here to serve as guidelines for the user of such methods or for the individual responsible for selecting appropriate physical intervention programs.

BEST PRACTICES

Numerous programs whose purpose is to train teachers in physical intervention techniques are available through private and public agencies or individuals. Review of such programs is limited by a number of factors such as a lack of detailed program descriptions, or the expense and time involved in actual participation in every program. However, through brochures, attendance at conference sessions, listening to teachers in the field trained in such strategies, and the conduct of such training since 1979, we have identified several components that are felt to represent best practices. The following sections describe the various best practice components only for the purpose of clarification and

are not intended to be used as training. For purposes of presentation the best practices have been organized into questions the potential consumer should pose to the provider of training before deciding whether or not to adopt a *particular program*.

What are the format and duration of training?

Training in techniques of physical intervention should consist of demonstration, practice, and feedback cycles for each skill included. Verbal descriptions or even isolated physical demonstration are not adequate. This obviously precludes the use of films or videotapes as the sole medium for providing training. However the provision of handouts which accompany instructor guided training are desirable.

If the goal of training is proficiency, adequate time must be allotted for participants to practice extensively and receive instructor critique. Ideally instruction should occur in 2- to 3-hour segments over a period of several days in order to permit practice and skill development.

Are planning and teamwork stressed?

While a certain amount of flexibility is sometimes necessary, having a specific, predetermined plan of action has several possible benefits for both the teacher and student involved in violent or potentially explosive situations. Preset contingencies allow for consistency of behavior on the teacher's part and promote a quickness of reaction which can improve the effectiveness of intervention. Most importantly, preplanning may reduce the teacher's anxiety that accompanies aggressive student behavior. Smith (1981) proposes that as physiological arousal increases, judgment decreases. The effect of this inverse relationship may be teacher overreaction. The calm teacher is more likely to be aware of subtleties in the student's behavior and can better de-escalate the situation with assurance. Additionally, if the teacher has a set of specific procedures, the use of physical intervention can be more clearly explained to administrators and parents, thus increasing the likelihood of gaining their support. Lastly, if a plan exists it can be evaluated and changed should it prove ineffective. Few things are worse than unpleasant or painful history repeating itself, and modification of a plan that did not work should improve future efforts.

Closely related to planning is teamwork. How other professionals will be utilized in crisis situations must be understood by all prior to their occurrence. Involving others in a team approach is often desirable with older, larger students, or to increase control of a student so that chance of injury is minimized. However, having access to others is not enough; therefore, planning takes on an even more important role. If a team member is uncertain of his or her role, other members or the child may suffer as a result. If all staff members are aware of their own responsibilities, the situation can be dealt with more efficiently and safely.

Does the program include guidelines for determining the need to intervene?

Adequate training in physical intervention methods should include information on identifying potential aggression and deciding if the situation warrants actual physical involvement by the teacher. Critical to assessing possible aggressive outbursts is knowing the student well enough to spot early warning signs of an impending outburst. A change in the student's behavior may be indicative of an

aggressive episode; some student become loud, some quiet, while others may pace. Reacting to early behavioral cues allows the teacher to attempt less restrictive interventions perhaps heading off a more violent incident.

A decision to become physically involved in controlling a student is difficult at best, yet still must be made prudently during a stressful situation. Upchurch, Ham, Daniels, McGhee, and Burnett (1980) discuss the following questons that need to be asked as a mental response to the aggressive situation:

1. Is it necessary to physically intervene? Have I tried less intense methods? Is the student's behavior causing or likely to cause injury to her/himself or others?
2. Am I able to effectively intervene alone or do I need to summon help?
3. Do I need to remove the rest of the class? Sometimes eliminating the audience allows a unilateral withdrawal with mutual facesaving.
4. What form may the student's aggression take? Does he or she usually kick, bite, or throw things? Is the student known to carry a weapon?

These and other considerations are crucial in deciding a course of action and discussion of these considerations should be an integral part of a physical intervention training program.

What is the range of skills included in training and are they intended to be offensive or defensive?

The main substance of a physical intervention training program is what to do when preventive techniques fail. A best-practice curriculum should include techniques that address the many possible forms aggressive, asaultive behavior may take and should do so in a manner which considers the well being of the aggressive student, observers, and the intervening teacher. The following are categories of skills that we believe teachers need.

Approaching the agitated student in a nonthreatening manner. Considerations for this technique might include arm positioning by the teacher, eye contact, tone of voice, and speed of movement. It may also include methods of responding to verbal aggression.

The use of physical restraint. Protective and effective restraint should provide adequate control while not causing the student discomfort. Physical restraint training should also include methods of restraining a student in a variety of positions (e.g., in a chair, standing, on the floor). Specific procedures for involving more than one person in restraining the child should also be addressed.

Blocking punches and kicks in a defensive manner. Students may attack the teacher in a variety of ways and the teacher should be able to protect without being offensive.

Escaping from a student who has made physical contact. Techniques for escaping from various hold, grabs, bites, and hairpulls should be included. Training should provide alternatives for each type of escape as well as procedures dependent upon whether the student is behind, in front of, or at the side of the teacher. Escape methods are offensive in many programs and are vulnerable to excessive force. For example, a commonly promoted escape from a front choke is to thrust both arms up between the arms of the student. While effective if properly executed, this technique could physically harm the student and is dependent upon strength and timing. A simple turning method works just as efficiently without harming the student and is readily learned by most individuals regardless of physical strength.

Transporting the student when necessary. If it has been decided the student should be moved to another location while still being restrained, teachers should know how to do so safely and effectively. Training should include *carrying the student in different positions and setting procedures for involving* others in the method.

SUMMARY

Aggression is a commonly noted characteristic of emotionally handicapped students and recent research results illustrate that various types and levels of aggressive incidents are frequently encountered by a majority of teachers in settings where emotionally handicapped students are served. In spite of the many issues surrounding the use of such techniques, these teachers are deserving of the kind of support that comes from being adequately trained in methods which are self-protective yet reduce the potential for injuring an assaultive student. Many forms of such training are currently available. Careful selection of safe, efficient best-practice techniques is suggested.

PHYSICAL INTERVENTION TRAINING PROGRAMS

Aggression Control Techniques (ACT), State of Florida, Department of Health and Rehabilitative Services, 1317 Winewood Boulevard, Tallahassee, FL 32301. Contact person: Joseph Infantino

Aggression Defense And Prevention Training (ADAPT), 1425 Buchanan Street, Novato, CA 94947. Contact person: Charles Hughes

Crisis Prevention Institution (CPI), Lakewood Building, 3575 N. Oakland Avenue, Milwaukee, WI 53211. No contact person.

Crycon, 5 Market Place, Pittsburgh, PA 15222. No contact person.

Preventive Intervention Techniques (PIT), Unicare Health Facilities, Inc., North Aurora, IL 60507. Contact person: John Bell

Protective Intervention Techniques (PIT), Staff Development, Murdock Center, Burtner, NC 27509. Contact person: Tim Upchurch

Please note: The authors do not wish to advocate any of the above programs. The inclusion of the program on the list in no way suggests the appropriateness of the program's content.

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Education for Self-Control: Classroom Applications of Group Process Procedures

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ABSTRACT

A great deal of recent research on the treatment (both academic and behavioral) of behaviorally disordered children and youth has focused on the issue of self-control. Increased interest in self-control procedures appears to have resulted from two major problems often observed with externally-mediated procedures: failure to generalize positive behavior change to situations in which treatment has not been programed, and failure to maintain positive behavior change over time. This article describes the application of two procedures for teaching self-control skills to behaviorally disordered students. The first set of procedures includes child-mediated academic goal setting and evaluation, along with a sequential process for gradually transferring control from adults to students. The second set of procedures includes a combination of group-oriented activities, contingencies, and meetings focused primarily on teaching behavioral self-control skills. The discussion stresses the relationship of the procedures to the current self-control literature on behavioraly disordered children.

An impressive body of research has accumulated to demonstrate that the classroom behavior of school-aged children can be positively influenced by a variety of behavioral procedures (Copeland & Hall, 1976; Kerr & Nelson, 1983; O'Leary & O'Leary, 1976, Rosenbaum & Drabman, 1979). As Polsgrove (1979) has pointed out, the bulk of these investigations have relied on adult-mediated interventions. More recently, the literature of psychology and special education has reflected a tremendous surge of interest in the application of children's self-control procedures (Albion, 1983; Lovitt, 1973; O'Leary & Dubey, 1979; Polsgrove, 1979). Discussion has emphasized procedures whereby youngsters become the principal agent for regulating their own behavior (Kurtz & Neisworth, 1976). This shift from adult- to child-mediated treatment appears to have resulted from three major problems with an externally-mediated treatment approach: (a) Behavior gains often do not generalize to situations in which the externally-mediated contingencies have not been applied (Kazdin, 1975; Turkewitz, O'Leary, & Ironsmith, 1975); (b) there are few data demonstrating that externally-mediated contingencies are effective in promoting long-lasting behavior change (Rosenbaum & Drabman, 1979; Turkewitz et al., 1975); and (c) monitoring a systematic program of externally-mediated contingencies in a classroom setting is extremely time consuming and may significantly decrease the amount of actual instruction time (Rosenbaum & Drabman, 1979). Shifting to a treatment approach that focuses on child-mediated contingencies is viewed as a potential solution to each of these difficulties.

The research on classroom applications of self-control procedures has dem-

onstrated positive effects on a wide variety of academic skills. Self-control procedures have produced improvements in students' attention to task (Hallahan, Lloyd, Kosiewicz, Kauffman, & Graves, 1979), oral reading (Glynn & Thomas, 1974), written assignments (Broden, Hall, & Mitts, 1971), hand-writing (Hallahan et al., 1979), and arithmetic computation (Lloyd, Hallahan, Kosiewicz, & Kneedler, 1982). Viewed together, these and other studies offer strong testimony to the use of self-control to promote academic achievement of children with learning and behavior problems. While self-control procedures have been effective in producing academic gains, the results of studies targeting various disruptive behaviors have been mixed (Bolstad & Johnson, 1972; Kaufman & O'Leary, 1972; Santogrossi, O'Leary, Romanczyk, & Kaufman, 1973). Given the obvious importance of these behaviors in facilitating successful academic experiences for behaviorally disordered students, it is clear that much more work is needed in this area (Kerr & Zigmond, 1982; Mehan, 1979; Rueda, 1981).

In the following discussion, we present two classroom applications of self-control procedures. The first is a child-mediated goal-selection procedure implemented to improve academic performance, and the second is a group approach to teaching a variety of school "survival skills." For each application we will briefly describe the setting in which the procedures are implemented, outline the major components of the procedure, and discuss how the procedures relate to developing self-control skills in behaviorally disordered students.

SELF-SELECTING ACADEMIC GOALS

The ability to self-select goals is a critically important component of any comprehensive self-control program. However, as Polsgrove (1979) has indicated, this area has received far too little attention in the research literature. While research demonstrating its effectiveness relative to adult-mediated procedures is limited, self-goal-setting has often been used as a component of treatment programs for behaviorally disordered children (Hobbs, 1982). These programs have stressed student-selected goals that are (a) appropriate to the individual, (b) specific statements of overt behaviors, (c) positively rather than negatively stated, and (d) limited in number. Adapting this concept, with refinements based on recent investigations, we have introduced self-goal-setting procedures into the daily routine of classroom instruction for behaviorally disordered children.

Setting and Population

Western Psychiatric Institute and Clinic is a university-based acute care psychiatric facility serving 23 counties in western Pennsylvania as well as parts of eastern Ohio and northern West Virginia. Children and youth are treated on three inpatient units. The John Merck Program serves multiply-disabled children ages 3-14 who are emotionally disturbed as well as physically and/or intellectually disabled. The Children's Psychiatric Treatment Service serves severely emotionally disturbed children ages 5-12. And the Adolescent and Young Adult Module serves emotionally disturbed youth age 13 and older. The majority of referrals are made by parents, community agencies, schools, and private physicians. Difficulties leading to hospitalization include aggressive acting-out behavior, suicidal or homicidal risk, severe withdrawal or depres-

sion, self-injurious behavior, disruption or school avoidance, eating disorders, and runaway and other delinquent or status offenses. The length of hospitalization ranges from 30 to 120 days. The children receive approximately 3 hours of academic instruction daily. These special education services are provided by four certified special educators in two classrooms located on the unit.

Goal-Setting Procedure

Each day, just prior to a 20-minute period that consists of independent seat work on math facts, the teachers ask each student to self-select an academic goal to work on during the period. Students are encouraged to select goals that have been identified as contributing to successful classroom performance, such as on-task, compliance with instructions, appropriate verbal responses, and academic productivity (Greenwood, Delquadri, Stanley, Sasso, Whorton, & Schulte, 1981). Examples include such statements as: "I will work hard and not waste time" and 'I'll do more problems than yesterday." During the 20-minute work period, teachers and students are signaled by an audio taped cue (on a variable interval schedule) to record "attaining" versus "nonattaining" of the self-selected goal. For teachers, this is accomplished by recording pupil behavior on a checklist; students score their behavior on a 5" x 8" Countoon as attaining (indicated by a happy face) or not attaining (indicated by a frowning face). The tally obtained on both teacher and pupil records serves as the criterion for judging goal attainment. A satisfactory score consists of four of five possible recordings of attainment. At the conclusion of the 20-minute session, students are called on to state their goal and say whether they were able to achieve the goal.

Initial data obtained on the self-selected goals are comparable to findings of previous investigations (Rosenbaum & Drabman, 1979; Sagotsky, Patterson, & Lepper, 1973; Santogrossi et al., 1973) and suggest that certain youngsters are able to improve academic performance with the simple imposition of the antecedent event of goal setting. Others require not only goal setting but also self-evaluaton combined with adult feedback. Finally, for certain youngsters, introduction of various contingency arrangements is required.

Strategies for Transferring Control

While continuing to examine students' self-selection of goals, we have also developed a companion procedure designed to facilitate the transfer of control from adults to the students. The procedure is designed to minimize two major problems that have been observed when attempting to shift control from adults to children: (a) increased episodes of noncompliance (Drabman, Spitalnik, & O'Leary, 1973) and (b) inaccurate (overly positive) self-evaluation of behavior (Santogrossi et al., 1973). Expanding on earlier work, a stepwise procedure has been adapted from the literature on contingency contracting (Homme & Tosti, 1971). This procedure initially introduces adult-mediated goal and reinforcement selection. Once these procedures have been instituted and youngsters have obtained ample opportunity to participate in adult-managed programs, the level of adult participation is gradually faded until a child-mediated system emerges. The five successive steps for transfer-of-control are illustrated in Figure 1. At the first step, an adult not only determines the goal (i.e., the academic task to be performed) but also selects and administers the reinforcers. By comparison, the student is simply required to comply with the

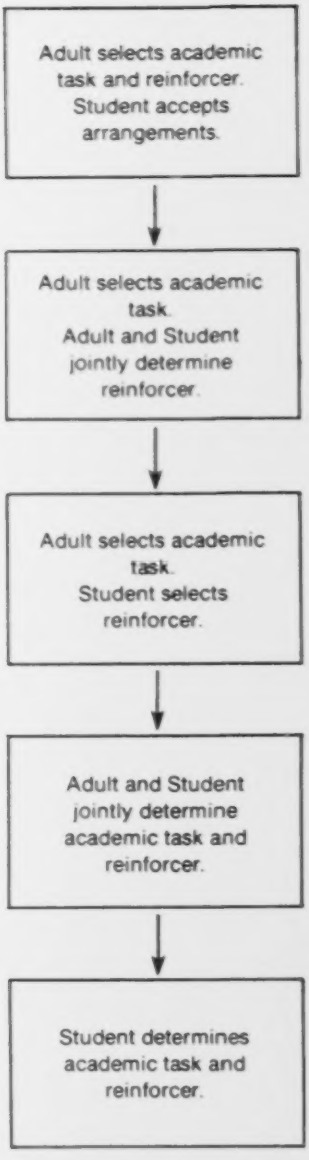
Adult selects academic task and reinforcer. Student accepts arrangements.
Adult selects academic task. Adult and Student jointly determine reinforcer.
Adult selects academic task. Student selects reinforcer.
Adult and Student jointly determine academic task and reinforcer.
Student determines academic task and reinforcer.

Figure 1. *Five-step strategy for moving from an adult-controlled to a student-controlled program for academic tasks (adapted from Homme and Tosti, 1971).*

contingency arrangement. In succeeding phases, determining the reinforcer, and then determining the academic task, is shifted to the control of the child. Observing a stepwise procedure for implementing self-control of academic

responding allows for assessing the impact of each phase of the self-control package. The pace at which transfer-of-control occurs can be determined by student performance.

A GROUP PROCESS APPROACH TO TEACHING SELF-CONTROL

A group process approach to treatment provides opportunities to teach every component of a comprehensive self-control program. It requires that students (with the minimal staff direction possible) select their own goals, set criteria for accomplishment and reinforcement, select their own reinforcers, monitor their behavior, and evaluate their performance. In addition, since most of these tasks are accomplished in a group setting, it provides additional opportunities to practice these skills through observing and helping other students. A group process approach to treatment, then, provides structured opportunities to teach all the skills necessary for students to successfully manage their own behavior. The following discussion describes group process procedures and their integration into ongoing school activities.

Setting and Population

Pressley Ridge School is a private, nonprofit organization that operates five distinct programs for both normal and disturbed children. The combined education and partial hospitalization program (the focus of the present article) serves 120 emotionally disturbed/behaviorally disordered children and adolescents between the ages of 6 and 18 (average age = 14.1 years). Referrals are made by local school districts and mental health programs when the special services these programs offer have proven inadequate in meeting a student's needs. The most common referral problems include hyperactivity, lack of impulse control, verbal and physical aggression, social withdrawal, depression, truancy or runaway, poor socialization skills, and academic deficiency. In addition, nearly 75% of the students come from poorly functioning, multiproblem families where other children and/or the parents are receiving, or are in need of, special social, counseling, or educational services. Each of the ten classrooms is staffed by two teacher/counselors who are responsible for implementing all of the procedures described below.

Advantages of a Group Approach

The treatment approach at Pressley Ridge is based on a combination of the Re-ED model (Hobbs, 1966, 1982) and behavior analysis pricniples. Both the academic and behavioral treatment programs are individually prescribed for each student and include a variety of interventions including classroom point and level systems, individual contracts and interventions, individual tutoring and counseling, and group process procedures. Thus, treatment consists of a well-integrated program of both individual and group procedures.

There are several advantages to employing group procedures within an overall treatment program. First, group-oriented procedures provide a structure within which a great many social behaviors (e.g., cooperation, sharing, assertion, problem solving, delivering constructive feedback, listening, and self-expression) can be taught. Second, group-oriented procedures and contingencies provide a set of conditions that encourage students to reinforce appropriate rather than inappropriate peer behavior, thereby providing additional appropriate consequences for target behaviors and minimizing compet-

ing inappropriate consequences for those behaviors. Finally, work with groups can be more efficient. A group rather than individual approach to solving an interpersonal problem between two peers, for example, provides an opportunity for the entire group (not just the two students involved) to learn both problem solving and a variety of other communication skills.

Characteristics of a Group Process Program[1]

A maximally effective group process model must be integrated into every activity of the school day. That is, every student behavior (e.g., taking a spelling test, sharpening a pencil, welcoming a visitor, recording the day's point totals, or suggesting a solution at a problem-solving meeting) occurs within the group framework. While specifically defining group process is a difficult task, we have identified three basic characteristics of the model: group activities, group contingencies, and group meetings.

Group Activities. The group process model requires that the teachers and students work together on a variety of activities including (a) deciding on a group name, (b) using the name to develop a theme and decorating the classroom accordingly, (c) developing the classroom rules and expectations, (d) specifying consequences for rule infractions, (e) planning and taking field trips, and (f) participating in special class and school-wide projects.

Requiring student participation in all classroom activities serves two major purposes. First, it provides opportunities for the students to learn and practice important social and academic skills. All group activities require that the students work together to identify all the tasks required to complete the activity, assign individual responsibilities for completing each task, and monitor task completion. In addition to making and monitoring the plans as a group (which provide practice in planning ahead, cooperation, giving feedback, etc.), the students must also analyze the classroom budget to ensure that the activity is affordable and make all other arrangements (e.g., reservations, special prices, transportation) either through face-to-face or telephone contacts or through letters and memos. Thus, eah group activity provides a wealth of opportunities for practicing a wide range of important skills.

Second, group participation in classroom activities increases the students' commitment to following through successfully with their responsibilities. This is not so important when the activity is naturally reinforcing (e.g., a field trip), since a high level of motivation to participate successfully will already exist. However, student commitment to the group and its rules is important when attempting to obtain student compliance with classroom rules and acceptance of sanctions for inappropriate behavior. We have found that a group that has had significant input into setting its own standards and sanctions generally responds more appropriately to the system as a whole. This is consistent with the findings of others who have experimentally evaluated the effects of self- versus externally-imposed performance criteria (Bandura & Perloff, 1967; Brownell, Coletti, Ersner-Hershfield, Hershfield, & Wilson, 1977; Felixbrod & O'Leary, 1974; Lovitt & Curtiss, 1969; McLaughlin & Malaby, 1979).

Group Contigencies. A second major characteristic of the group process approach to treatment is the use of group, as opposed to individual, contingencies. Reitz and Dickie (1980) have developed a model that specifies the various possible combinations of individual and group contingencies (see Figure 2).

[1] A more detailed description of group process procedures is available on request from the first author.

Reinforcer Delivery	Criteria for Reinforcement: INDIVIDUAL	Criteria for Reinforcement: GROUP
INDIVIDUAL	1. Target performance set individually for each child. 2. Reinforcement earned individually by each child.	1. Target performance set at same level for each group member. 2. Reinforcement earned individually by each child.
GROUP	1. Target performance set individually for each child. 2. Reinforcement earned by entire group.	1. Target performance set for entire group. 2. Reinforcement earned by entire group.

Figure 2. *Model describing the components of the various types of individual and group contingencies.*

This model shows that both the critical components of any contingency arrangement — the criteria for reinforcement and the delivery of the reinforcer — may be specified on either a group or an individual basis. For the purpose of the current discussion, a group contingency is one in which the reinforcer is delivered to the entire group or to no one, regardless of the manner in which the criteria are set (contingency types 3 and 4 in Figure 2). The effectiveness of group contingencies in changing behaviors in a classroom setting has been demonstrated in a great many studies (Barrish, Saunders, & Wolf, 1969; Drabman, Spitalnik, & Spitalnik, 1974; McReynolds, Gange, & Speltz, 1981; Packard, 1970; Sulzbacher & Houser, 1968; Switzer, Deal, & Bailey, 1977). Group contingencies are also recommended because they generally achieve results more efficiently; that is, they require less time and effort on the part of the teacher. We have also observed that group contingencies increase cooperative (helping) behaviors among group members and are sometimes effective with students unresponsive to individual contingency arrangements. Additional discussion and examples of group contingency procedures can be found in a review by Litow and Pumroy (1975).

Group Meetings. While group activities and contingencies play important roles in the implementation of a comprehensive group process to the treatment of behaviorally disordered children, the most distinctive features of group process are the structured group meetings. The basic components of each of the three types of meetings are shown in Table 1. The primary objectives of each meeting are described below.

1. Planning meeting. A group begins each school day with its planning meeting. This meeting serves three basic functions. First, and most importantly, it emphasizes the importance of each student's individual goal and the group

goal. Goal setting is an integral part of the group process approach to treatment. Each individual, with input from the teachers and other group members, must select one behavioral and one academic goal on which to focus particular attention each week. In addition, the group must select a goal on which all members will focus during each week. By systematically reviewing these goals and by providing suggestions (helpful hints) to facilitate goal achievement at every planning meeting, these goals become an important focal point throughout the day's activities. This greatly increases the likelihood that all group members will prompt and socially reinforce the appropriate behavior of their classmates. Second, a planning meeting provides structure for the school day. By carefully previewing the day's activities each morning, a group can prevent

TABLE 1

Group Process Meeting Components

Planning Meeting

1. State expectations for behavior during the meeting.
2. State the group goal.
3. Each student states his/her academic goal.
4. Each student states his/her individual behavioral goal.
5. Ensure that each group member receives at least one helpful hint regarding his/her goals.
6. Plan and/or review progress on special activities.
7. Use the planning board to review the day's schedule (noting individual exceptions and special activities).
8. Summarize the group's performance during the meeting.
9. Set expectations and return to seats to prepare for the next scheduled activity.

Evaluation Meeting

1. State expectations for behavior during the meeting.
2. Briefly review the group's day.
3. Evaluate the group goal.
4. Evaluate each student's academic goal.
5. Evaluate each member's individual behavioral goal.
6. Ensure that each group member gives and receives at least one positive statement.
7. Summarize the group's performance during the meeting.
8. Set expectations and return to seats to await dismissal.

Problem-Solving Meeting

1. State expectations for behavior during the meeting.
2. Obtain a clear statement of the problem.
3. Discuss and evaluate potential solutions to the problem.
4. Select a solution for implementation.
5. Obtain a commitment from the group (particularly the individuals involved) to implement the solution.
6. Summarize the meeting.
7. Set expectations and return to the scheduled activity.

problems that frequently arise from an abundance of unstructured time and confusion regarding unclear expectations. The daily schedule also provides a checkpoint for evaluating the group's progress through its daily activities. This scheduling process is designed to teach students the importance of structuring their time and of providing reinforcers after the completion of required activities. Third, planning meetings provide an opportunity to make and review plans for special group activities. The purposes and importance of these activities have been discussed above.

2. *Evaluation meeting.* Just as a group begins each day be previewing the day's activities at a planning meeting, they finish each day be reviewing the day's activities at an evaluation meeting. This meeting serves two basic purposes. First, and most importantly, it provides each group member with an opportunity to realistically evaluate performance on his or her own, other members', and the group's goals. This evaluation must include specific behavioral statements regarding goal-related performance. Much attention is focused on this evaluaiton activity, not only because self-evaluation is a critical component of any self-control strategy, but also since realistic performance evaluation is a serious deficit area in the majority of the behaviorally disordered children we serve. A combination of teacher modeling and social reinforcement has been effective in greatly increasing students' ability to accurately and specifically evaluate their own and other's behavior (Freado, Freado, & Reitz, 1982). Second, the evaluation meeting provides an opportunity to teach students to give and receive both positive and negative feedback. One of the most common referral problems for behaviorally disordered children is their inability to accept negative feedback regarding any facet of their behavior. Additionally, although it generally causes fewer obvious problems, these students also frequently lack the ability to effectively socially reinforce the behavior of others. Both of these skills are critical in maintaining satisfying social relationships with others. The evaluation meeting provides a highly structured mechanism within which both these behaviors are practiced and heavily reinforced.

3. *Problem-solving meetings.* Problem-solving meetings are held as needed to deal with interpersonal problems and conflicts among group members. When a problem arises that cannot be resolved through prompting, brief discussion, or use of the behavior management (point) system, the group stops its ongoing activities, sits together, discusses the problem, and develops plans to prevent the problem from recurring (note that the meeting does not focus on determining consequences for misbehavior). The process is similar to that described by D'Zurilla and Goldfried (1971) and Spivack, Platt, and Shure (1976). A problem-solving meeting serves two primary functions. First, it facilitates the resolution of interpersonal problems that interfere with the group's functioning and, thus, helps the group and its members to achieve their goals. Second, it provides a real-life situation in which group members can learn and practice the basic steps in interpersonal problem solving: problem identification, generation of solutions, prediction of consequences, and selection of appropriate solutions. Once learned, these skills will facilitate a positive adjustment to any life situation.

SUMMARY

The self-control literature has clearly demonstrated positive effects on a variety of student behaviors in classroom settings. The present article has described how two programs for behaviorally disordered children have implemented

individual and group-oriented procedures to teach students to manage their own academic and social behavior. While much is yet to be accomplished, it is hoped that continued careful analysis of such programs will lead to an ever increasing understanding of self-control procedures and the eventual emergence of a technology that will have widespread applicability in classroom work with behaviorally disordered and other children.

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Sequential and Simultaneous Processing in Children with Behavioral or Psychiatric Disorders: Validity of the K-ABC

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The editors would like to acknowledge that this article marks Dr. Forness' 100th refereed publication.

ABSTRACT

The issue of sequential versus simultaneous (holistic) processes in cognitive functioning of children with behavioral or psychiatric disorders may receive increased attention because of the introduction of the Kaufman Assessment Battery for Children (K-ABC). The K-ABC was administered to 20 children hospitalized for various behavioral and psychiatric disorders, and scores were examined both in relation to differences in the two modes of cognition and in comparison to the subjects' current IQ and achievement scores on the WISC-R and PIAT. Results are discussed with particular attention to eligibility for special education.

The issue of sequential versus simultaneous processing in children with behavioral disorders has become increasingly more important in special education for several reasons, not the least of which is that this dichotomy characterizes the organization of an important new intelligence and achievement test battery, the K-ABC (Kaufman & Kaufman, 1983a). The K-ABC promises to be widely used by public school personnel because of several attractive features including (a) both IQ and achievement measures which have been standardized on the same population, (b) an IQ measure which tends to appear less dependent on verbal or acquired learning than comparable measures such as the WISC-R (Wecshler, 1974), and (c) a standardization sample which not only includes children in different special class placements but also allows comparisons along separate sociocultural norms. The format of the K-ABC, with its emphasis on pictures or photographs and on touching or actual manipulation of stimuli, may also render it somewhat more desirable than other such tests for certain behaviorally disordered children.

Like the WISC-R, the K-ABC provides both a full-scale or mental processing composite score of intellectual performance and separate global and scaled scores for various functions. As opposed to the WISC—R in which global scales are separated into verbal and performance IQs, the K-ABC provides global scores separated into sequential and simultaneous abilities. Sequential or successive processing involves learning in the form of a series of items or events. Simultaneous or holistic processing involves learning in the form of a total gestalt or pattern in which items or events are simultaneously associated with one another. While manifestation of these two cognitive processes has been investigated in a variety of childhood disorders, relatively little attention has been paid to implications for children with behavioral problems.

A recent paper by Tanguay (1984), however, reviews the evidence for a

sequential-simultaneous dichotomy as it applies to various types of children with behavioral disorders and suggests that patterns of impairment in each area may be important to differentiating between severely and mildly impaired children. With other types of exceptional children, such as the learning disabled or mentally retarded, differences in sequential and simultaneous processing have been viewed as important to choice of remediation or treatment (Das, Leong, & Williams, 1978; Kinsborne, 1982; Luria, 1973). Phonetic versus sight-word approaches to reading are examples, though not necessarily pure ones, that parallel these respective forms of cognitive processing (Forness & Kavale, 1983a, b).

The present study has two purposes. The first is to examine the validity of the K-ABC with behaviorally disordered children. Of the 43 validity studies reported by Kaufman, only one involved children with behavioral disorders (Kaufman & Kaufman, 1983b). The K-ABC scores of subjects in the present sample were therefore compared with their existing IQ and achievement scores on two other measures, the WISC-R and the Peabody Individual Achievement Test (PIAT, Dunn & Markwardt, 1970). Both these measures have become rather standard in psychoeducational assessment batteries for children with learning or behavioral disorders. The second puspose is to examine, in a preliminary fashion, the pattern of sequential versus simultaneous processing in children with behavioral disorders.

METHOD

Subjects

Test data were gathered on 20 subjects, 11 boys and 9 girls. All were between the ages of 8 and 12½. Mean age was 10.8 years (SD = 1.5 years). Racial designation was 18 white and 2 black subjects. All were hospitalized on the inpatient service of the UCLA Neuropsychiatric Institute (NPI) during July and August 1983. All were enrolled in the inpatient NPI school, and testings were completed as part of routine psychoeducational assessments in preparation for their eventual placement in public school settings upon discharge. A complete description of the hospital and school programs is available in Forness (1983).

Test Administration

The PIAT was administered to each subject by a classroom teacher upon admission, and WISC-R global and subtest scores were obtained from NPI medical records. WISC-R was administered to each subject during the first month of admission by licensed NPI clinical psychologists, except for three subjects whose IQ was on file in records from referring agencies with a WISC-R administered within the preceding 3 months. K-ABC was administered to each subject by the first author (SRF), a licensed educational psychologist, or by the second author (MCH) under the first author's direct training and supervision for the purpose of this research.

As per instruction in the K-ABC manual for children aged 8 to 12½, all three Sequential and five of the seven Simultaneous scales were administered to each child. The Sequential scales were Hand Movements (performing a series of hand movements in the same sequence as the examiner performed them), Number Recall (repeating a series of digits in the same sequence as the examiner said them), and Word Order (touching a series of silhouettes of

common objects in the same sequence as the examiner said the names of the objects, including an interference task between the stimulus and response for more advanced items). The Simultaneous scales were Gestalt Closure (naming an object or scene pictured in a partially completed inkblot drawing), Triangles (assembling several identical triangles into an abstract pattern to match a model), Matrix Analogies (selecting the meaningful picture or geometric shape that best completes a visual analogy), Spatial Memory (recalling the placement of pictures on a page that was exposed briefly), and Photo Series (placing photographs of an event in chronological order). Likewise per K-ABC instructions, five of the following six achievement scales were administered: Faces and Places (naming the well-known person, fictional character, or place pictured in a photograph or drawing), Arithmetic (demonstrating knowledge of numbers and mathematical concepts, counting and computational skills, and other school-related arithmetic abilities), Riddles (inferring the name of a concrete or abstract concept when given a list of its characteristics), Reading/Decoding (identifying letters and reading words), and Reading/Understanding (demonstrating reading comprehension by following commands that are printed in sentences). Rather impressive data in virtually every significant area of reliability and validity for the K-ABC are presented in Kaufman and Kaufman (1983a, b).

Degree of Impairment

Each subject's primary psychiatric diagnosis was obtained from NPI medical records. Diagnoses were made by NPI house staff and trainees under the direct supervision of UCLA faculty phychiatrists.

Six subjects had primary diagnoses of schizophrenic or psychotic disorders; and 14 had a variety of other diagnoses involving anxiety, conduct, or attention deficit disorders. In order to examine the issue of severity, these two groups were respectively designated as severely and mildly impaired.

Comparisons and Contrasts

The above groupings allowed at least preliminary examination of whether K-ABC processing patterns (i.e., differences between sequential and simultaneous abilities) were related in any way to severity of impairment of behavioral disorders. These global-scale comparisons were computed, according to instructions in the K-ABC manual, using the .05 level of probabilty as the criterion for clinical significance between Sequential and Simultaneous Scales (Kaufman & Kaufman, 1983a). Analyses of K-ABC relationships to WISC-R and PIAT scores were performed using product-moment correlations to examine relationships between both measures. Since measures might be significantly correlated and yet still yield contrasting scores, analyses of variance (ANOVA) were also used to compute differences between corresponding intellectual measures. Both ANOVA and ANACOVA (with each subject's mean IQ, derived by averaging both Full Scale IQ and MPC, used as covariate) were used to compute differences between corresponding achievement scales, using standard scores. Although Sequential and Verbal or Simultaneous and Performance IQs are not strictly considered directly corresponding measures, contrasts were examined between these two scales as well. All statistical analyses were computed using Statistical Analysis Systems (SAS Institute, 1982).

TABLE 1

Correlation Matrix

		WISC-R			K-ABC			PIAT			K-ABC		
VARIABLE*		**IQ**	**VQ**	**PQ**	**MP**	**SE**	**SI**	**M**	**RR**	**RC**	**A**	**RD**	**RU**
WISC-R	IQ	—											
	VQ	.91											
	PQ	.84	.58										
K-ABC	MP	.67	.68	.45									
	SE	.38	.55	.03	.75								
	SI	.63	.48	.66	.74	.12							
PIAT	M	.61	.61	.48	.50	.20	.53						
	RR	.51	.62	.29	.54	.37	.43	.83					
	RC	.58	.57	.45	.68	.38	.59	.82	.91				
K-ABC	A	.59	.65	.41	.48	.33	.39	.91	.82	.80			
	RD	.53	.58	.37	.53	.26	.51	.83	.93	.89	.80		
	RU	.55	.56	.43	.57	.33	.50	.80	.93	.96	.76	.92	—

For legend, see variables as labeled in Table 2. Correlations greater than .56 were significant at the .01 level.

RESULTS

Correlations among global intellectual scores and achievement standard scores are presented in Table 1. Statistically significant correlations were found among MPC and Full Scale IQs but not among Sequential and any of the three WISC-R global scales or between Simultaneous and WISC-R Verbal IQ. There was a relatively low correlation between K-ABC Sequential and Simultaneous Scales. There appeared also to be very little statistically significant relationships among K-ABC intellectual and achievement measures; of nine possible correlations, only one reached significance. Corresponding K-ABC and PIAT achievement measures, however, appeared highly related to one another.

Mean IQ and achievement data are presented in Table 2. K-ABC MPC was significantly higher than WISC-R Full Scale IQ ($F = 4.41$, 1/18 *df*, $p < .05$); and statistically significant differences were also found between Verbal and Sequential Scales ($F = 6.64$, 1/18 *df*, $p < .02$) but not between Simultaneous and Performance Scales. All K-ABC achievement measures were significantly lower than corresponding PIAT subtests (Arithmetic, $F = 7.04$, 1/17 *df*, $p < .02$; Reading Decoding, $F = 10.27$, 1/17 *df*, $p < .005$; and Reading Understanding, $F = 19.31$, 1/17 *df*, $p < .0004$). These differences were significant without IQ covariate as well. Only two subjects had K-ABC global achievement scales that were above a standard score of 100, and none of the above contrasts differed significantly between males and females.

In regard to level of impairment, the mean Sequential scores for both subgroups (85.7 for severely impaired and 98.2 for mildly impaired) did not differ significantly ($t = 1.50$, 9 *df*, $p < .17$) nor did the mean Simultaneous scores (93.3 and 95.4, respectively).

DISCUSSION

In terms of concurrent validity of the K-ABC, as compared to corresponding measures of intelligence and achievement on the WISC-R and PIAT, behavior-

TABLE 2

Intellectual Testing Results

Variable	Mean	Range	SD
WISC-R			
Full Scale IQ	88.9	66-123	13.2
Verbal IQ	85.6	60-112	15.2
Performance	93.1	71-118	11.2
K-ABC			
Mental Processing Composite (MP)	93.8	76-115	11.3*
Sequential Processing (SE)	94.4	66-126	17.2*
Hand Movements	8.4	1-12	2.9
Number Recall	8.8	3-18	4.1
Word Order	9.9	4-16	3.7
Simultaneous Processing (SI)	94.8	69-114	10.6
Gestalt Closure	9.7	1-15	3.2
Triangles	9.8	6-15	2.7
Matrix Analogies	9.9	6-19	3.2
Spatial Memory	7.4	5-12	3.0
Photo Series	9.9	7-13	1.8
PIAT Grade Level Achievement			
Mathematics (M)	4.9	1.1-11.3	3.2
Reading Recognition (RR)	5.0	0.9-12.9	3.3
Reading Comprehension (RC)	4.4	0.1- 9.2	2.5
K-ABC Grade Level Achievement			
Arithmetic (A)	3.9	1.0- 6.9+	1.9**
Reading Decoding (RD)	3.9	1.0- 6.9+	2.2**
Reading Understanding (RU)	3.6	1.0- 6.9+	2.0**

* Indicates statistically significant difference at .05 level between MPC and Full Scale WISC-R IQ and between Sequential and Verbal IQ on WISC-R

** Indicates statistically significant difference at .02 level between K-ABC and comparable subtests on PIAT. Note that achievement scores for the K-ABC do not convert beyond the 6.9 grade level. Standard scores were used in analyses.

ally or psychiatrically disordered children in the present sample tended to score significantly higher on two of the three K-ABC global intellectual scales than they did on the approximately corresponding WISC-R scales. Their scores, on these scales, however, generally tended to correlate significantly with one another. The correlation of .67 between WISC-R Full Scale and K-ABC MPC was statistically significant but indeed slightly lower than the .76 found by Nelson (reported in Kaufman & Kaufman, 1983b) who studied 43 behaviorally disordered children on both measures. His was the only other study of a behaviorally disordered sample published at the time of the present study. His subjects' pattern of a Simultaneous score slightly higher than Sequential was essentially not found in the present study.

Nelson's subjects also scored slightly lower on the Spatial Memory subtest, relative to all other subtests, as was found with the present subjects, though a test of significance was not done on this finding in either study. Low spatial memory seems to be unique to these two behaviorally disordered samples, as contrasted with several learning disabled and educable mentally retarded samples reported in Kaufman & Kaufman (1983b). In factor analyses reported by

Kaufman and Kaufman (1983b), this subtest does not load significantly on either the Sequential or Achievement clusters and loads only modestly in its own Simultaneous cluster. The nature of the test, which appears to require attention and short-term memory along with holistic skills, may render it especially difficult for disturbed children.

The extremely high PIAT versus K-ABC academic subtest correlations in the present study are also noteworthy, especially in light of the fact that these children scored significantly higher on the PIAT than they did on the K-ABC achievement scale. Behaviorally disordered children have been found to score higher on the PIAT in relation to certain other achievement tests as well (Finer & Forness, 1984). This creates less of an opportunity for a significant discrepancy to occur between PIAT scores and IQ measures with this type of sample. In order to qualify for special education services as learning disabled, in cases where they may not qualify as seriously emotionally disturbed under current public school laws, such children are first required to have a significant discrepancy between their IQ and achievement (Forness, Sinclair, & Guthrie, 1983). Whether the current finding of a generally higher intellectual score coupled with a lower achievement score leads to more frequent use of the K-ABC than the WISC-R and PIAT for this purpose remains to be seen.

Findings between subgroups of severely and mildly impaired children in this small sample must be viewed as extremely preliminary in nature. Although the Sequential deficit of the subsample of the six severely behaviorally disordered subjects totaled over 10 points, both their mean scores and the ratio of severely impaired subjects with a clinically significant deficit, on a case-by-case basis, did not differ significantly from those with mild behavioral disorders. Such process deficits in handicapped populations have thus far been notoriously difficult to document (Kavale & Forness, 1984; Kaufman, 1981; Zimmerman, 1984).

To conclude, it should be pointed out that certain pyschometric properties of the K-ABC seem to have been confirmed in this study, despite the fact that a relatively heterogeneous sample of behaviorally disordered children served as subjects. Especially noteworthy is the particularly low correlation between K-ABC Sequential and Simultaneous scales, that suggests that both are tapping very different processing skills, and the rather modest correlations between K-ABC ability and academic measures. The latter argue for the success of Kaufman's stated goal of developing intellectual measures less dependent on environmental advantage or acquired learning (Kaufman & Kaufman, 1983a). The fact that the Sequential scale, in particular, does not correlate at all well with two of three WISC-R global IQs makes this scale particularly intriguing. Though this study was preliminary in nature, the performance of children with behavioral or psychiatric disorders on the K-ABC suggests several potentially useful questions for further research and clinical study.

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Main and Interaction Effects of Metal Pollutants in Emotionally Disturbed Children

Mike Marlowe, Jim Jacobs, Charles Moon, and John Errera

ABSTRACT

This study investigated possible relationships of metal levels and metal combinations to emotional disturbance in children. Hair metal concentrations of lead, arsenic, mercury, cadmium, and aluminum in emotionally disturbed children (N = 37) were compared to those hair metal levels in a control group (N = 107). Each child was also rated on the Walker Problem Behavior Identification Checklist (WPBIC). The group of disturbed children had significantly higher hair lead and hair mercury levels. Discriminant function analysis revealed that by using age, sex, social class, lead, mercury, arsenic, and the combinatin of mercury with aluminum, subjects could be correctly classified as disturbed or controls with 78% accuracy. Regression data indicated that the set of metals was significantly related to increased scores on the WPBIC scales measuring acting-out, withdrawal, distractibility, disturbed peer relations, immaturity, and total score; and the metal combinations were significantly related to increased scores on acting-out and immaturity. It is concluded that a continuing re-examination of metal poisoning concentrations is needed because levels of metals and their combinations previously thought harmless may be associated with emotional disturbances in children.

Children exposed to toxic amounts of lead and other metal pollutants are subject to severe behavioral disorders resulting from damage to the central nervous system (Byers & Lord, 1943; Pfeiffer, 1977). It remains to be determined whether subtoxic metal levels are an etiologic agent in behavioral disorders. Subtoxic lead levels previously thought harmless are now being associated with hyperactivity, impulsiveness, and short attention span (David, Hoffman, & Sverd, 1976; Wiener, 1970), negative ratings by teachers on classroom behavior (Needleman et al., 1979; Marlowe & Errera, 1982b), school failure due to behavioral and learning problems (de la Burde & Choate, 1975), and metal disorders (Albert et al., 1974). Although only marginally examined, previous investigations have also linked subtoxic cadmium, mercury, and aluminum levels to measures of nonadaptive classroom behavior (Marlowe, Errera, Ballowe, & Jacobs, 1983; Phil & Parkes, 1977); and some investigators have hypothesized that metal-metal combinations may have an interactive effect, thereby increasing the total toxicity of the child's system (Marlowe, Moon, Errera, Jacobs, & Ballowe, 1983; Marlowe, Moon, Stellern, & Errera, in press).

This study had three major purposes. The first was to investigate the relationship between metal levels and emotional disturbance in children without demonstrable cause for their emotional deficit. The second was to determine which metals and their combinations, if any, separated the disturbed children

from a nondisturbed control group. In addition, from the subset of metals that significantly discriminated between the two groups, a determination of the relative importance of each metal and/or combination to the discrimination between the groups was to be made. The third purpose was to explore relationships between metal levels and metal combinations and teachers' ratings of the children on a behavior problem checklist.

METHOD

Subjects

The 144 subjects in this study were randomly drawn from five elementary schools and a residential school for emotionally disturbed children in three rural counties situated in the southeastern region of Wyoming. In the six schools 37 emotionally disturbed children were receiving special education services. Their diagnosis of emotional disturbance was based on an overall evaluation from a series of consultations by school psychologists, classroom teachers, and other appropriate specialists where indicated.

Presence or Absence of Probable Cause

All of the emotionally disturbed children's school records were reviewed to determine whether there was a known or highly probable medical reason for emotional disturbance (e.g., brain injury, metal poisoning). Any children with "probable cause" were to be removed from the study, but none of the children's records contained a probable cause. The 37 children with unremarkable medical histories for emotional disturbance were assigned to the experimental group.

The control subjects ($N = 107$) were randomly drawn from the general school population at the five elementary schools. Interviews with their teachers indicated none of the children were receiving special education or related services for emotional disturbance.

Two of the experimental and one control subject had histories of *pica*, the behavioral habit of ingesting inedible materials such as clay, paper, plaster, and paint. Pica has been shown to substantially contribute to increased metal levels and/or metal poisoning.

Table 1 shows the relevant demographic data for the two resulting groups of subjects. There were no significant differences between the groups in age or ethnic group distributions. The groups did differ significantly in sex and social class.

Classification of Metal Levels

After obtaining parental permission children were asked to submit a small sample of hair (approximately 400 mg) for trace mineral analysis. Hair samples were collected from the nape of each child's neck, as close to the scalp as possible, by the senior researcher using stainless steel scissors. The hair samples were submitted to a state-licensed clinical laboratory where they were analyzed with three instruments — the atomic absorption spectrophotometer, the graphite furnace, and the induction-coupled plasma torch — to determine five toxic metal levels. The five toxic metal levels tested for were lead, arsenic, cadmium, mercury, and aluminum.

Precise laboratory techiques were used to assure reliability of results to meet

TABLE 1

Demographic Characteristics of Two Groups of Children

	Sex	Age (year)			Ethnic Group		Socioeconomic Status	
	M/F	Mean ± S.D.		Range	Caucasian	Other	Mean ± S.D.	
Emotionally Disturbed group (N =37)	30/7	9.50	3.24	6-18	32	5	2.89	1.12
Control group (N = 107)	64/43	8.67	3.21	6-12	92	15	2.04	0.94

Children in each group came from social classes 1, 2, 3, 4, and 5 as defined by Hollingshed and Redlich (1958)

reproducibility requirements. The following list includes a description of these techniques.

1. A blind sample was run from the initial steps through the entire procedure to assure reproducibility of methods.
2. At least one of every three tests was a standard. Working standards were made to assure proper values.
3. The in-house pool was completely remade and analyzed monthly to eliminate the possibility of precipitating elements and to assure reproducibility.
4. Temperature and humidity were controlled to assure reliability and consistency of the testing instruments.
5. The hair samples were weighed to the thousandths of a gram (.001g is equal to approximately 4 hairs, 1 inch (.0254m long); and only volumetric flasks, the most accurate available, were used for diluting the ashed sample.
6. Lot number control sheets for all reagents were used to assure uniformity. Records are kept and available for inspection.
7. All glassware was acid washed inhouse before use and between each use, including acid prewashed disposable test tubes.
8. The water used was virtually mineral free, rated at 18+ MEG. Reports summarizing the findings of the hair analysis for each subject were received from the laboratory subsequent to analysis. Each report listed by the observed metal levels and the suggested upper limit for each metal level, and plotted the levels in relation to their upper limits.

Hair: A Useful Diagnostic Tool

Every part of the human body contains at least a few atoms of every stable element in the period table. Although a large number of these elements are found in detectable amounts in human tissue, blood, and urine, hair in particular contains a higher concentration of many of these elements. Trace elements are accumulated in hair at concentrations that are generally higher than those present in blood serum, and provide a continuous record of nutrient mineral status and exposure to heavy metal pollutants, and may serve as a probe of physiologic functions (Laker, 1982; Maugh, 1978). Scalp hair has several characteristics of an ideal tissue for epidemiologic study in that it is painlessly removed, normally discarded, easily collected, and its contents can be analyzed relatively easily (Hammer, Finklea, Hendricks, Shy, & Horton, 1971).

Walker Problem Behavior Identification Checklist

The Walker Problem Behavior Identification Checklist (WPBIC) is a screening device designed for elementary teachers in selecting children with behavior problems who may need referral for further psychological evaluation, referral, and treatment. The WPBIC consists of 50 observable operational statements of classroom behavior that might limit a child's adjustment in school. Differential score weights are assigned to each statement based on their influence in handicapping a child's adjustment. Factoring the 50 items, there are 14 items relating to acting-out (aggressive and disruptive behavior), 5 items relating to withdrawal (socially avoidant and passive behaviors), 11 items relating to distractibility (poor attentiveness and restlessness), 10 items relating to disturbed peer relations, and 10 items relating to immaturity.

Standardized on 534 elementary age children, the mean raw total score was 7.76 with a standard deviation of 10.53. One standard deviation above the mean

separates disturbed behavior from nondisturbed behavior and Walker (1970) reported the split half reliability of the scale at .98 and the difference between the means of disturbed and nondisturbed children on the scale significant beyond the .001 level.

In this present study, classroom teachers were instructed on how to fill out the scale by the senior researcher. All teacher ratings were based on observations of the child's classroom behavior for the past 2 months prior to hair collection.

RESULTS

The two groups of children were compared for hair-metal concentrations. As shown in Table 2 the mean lead and mercury concentrations for the disturbed group were considerably above that of the control group. The emotionally disturbed group had a mean hair lead of 10.78 parts per million (ppm) and a mean hair mercury of 1.30 ppm, while the control group had a mean hair lead of 7.02 and a mean hair mercury of 0.95 ppm. The data were then analyzed with the *t* test for two independent samples design of SPSS (Nie, Hull, Henkins, Steinbrenner, & Bent, 1975) yielding statistically significant *t* values for lead ($t = -5.24$, 142, $p < .001$) and mercury ($t = -285$, 142, $p < .01$), indicating the variation between the two means was unlikely to have occurred by chance. Analyses of the other metals failed to show significant differences in the group means.

The distribution of metal concentrations in the two groups is also shown in Table 2. No children secured hair metal levels associated with metal poisoning. Of the disturbed children, 6 had elevated hair lead concentrations, while none of the control children had elevated hair-lead concentrations ($p < .001$).

A discriminant analysis was performed to determine to what extent the metals could separate the two groups after the covariates sex, age, and social class were entered into the discriminant function. The set of covariates significantly separated the emotionally disturbed from the normal controls, $\Lambda = .84$, $F(3,140) = 8.92$, $p < .01$. The stepwise method revealed that lead contributed significantly to the separation of groups [$\Lambda = .90$, $F(1,139) = 19.43$, $p < .01$], then mercury [$\Lambda = .93$, $F(1,138) = 14.24$, $p < .01$, and finally arsenic [$\Lambda = .95$, $F(1,137) = 12.22$, $p < .01$] in that order, over and above the covariates. Product vectors were created for every pair of metals to determine if any further separation could occur over and above the covariates and single metals. Only the combination of mercury with aluminum yielded any additional separation [$\Lambda = .98$, $F(1,133) = 4.70$, $p < .05$].

Over 16% of the variance between groups was accounted for by the set of covariates. The addition of lead to the discriminant function accounted for about 10% of the variance over and above the covariates. Almost 7% was uniquely attributed to mercury, over 5% to arsenic, and about 2% to the combination of mercury and aluminum. Standardized discriminant function coefficients revealed that the most important variable in the discriminant function was lead (.70), followed by mercury (.54), arsenic (-.51), social class (.50), sex (.38), aluminum-mercury (.34), and age (.33).

A test of the assumption of equal variance-covariance matrices for the two groups was conducted using Box's *M* statistic. The null hypothesis of equal variance-covariance matrices in the population was rejected ($M = 104.28$, $p < .01$). The disparate sample sizes ($N = 107$ controls and $N = 37$ disturbed) probably contributed to the unequal matrices. However, the practical consequence of inflating the type I error rate is offset by the very small *p* values (less

TABLE 2

Distributions of Metal Concentrations in Two Groups

Metal	Statistics	Emotionally Disturbed (N = 37)		Control (N = 107)	
Lead	Mean ± S.D.	10.78	5.76***	7.02	2.76
	Nonelevated < 15 ppm.	31.		107	
	Elevated	6***		0	
Arsenic	Mean ± S,D.	2.74	1.50	3.12	1.35
	Nonelevated < 7 ppm.	37		107	
	Elevated	0		0	
Mercury	Mean ± S.D.	1.30	0.96*	0.95	0.47
	Nonelevated < 2.5 ppm.	34		107	
	Elevated	3		0	
Cadmium	Mean ± S.D.	0.75	0.51	0.65	0.37
	Nonelevated < 1.0 ppm.	31		95	
	Elevated	6		12	
Aluminum	Mean ± S.D.	12.62	16.07	10.13	
	Nonelevated < 30 ppm.	36		106	
	Elevated	1		1	

Note: All upper limits established by Doctors' Data, Inc., (1982)
*p < .05 **p < .01 ***p < .001

than .01) observed for all of the independent variables except the interaction.

On the basis of the discriminant function 78% of the 144 subjects were correctly classified as disturbed subjects or nondisturbed controls. These percentages are optimistic, however, since the function was applied to the data that produced it. A cross validation of the discriminant function is expected to result in somewhat smaller percentages.

The two groups of children were next compared for behavioral scores on the WPBIC. The disturbed group scored significantly higher than the controls group on four scales and the total scale of the WPBIC.

Mean WPBIC total scale raw scores were 30.00 for the disturbed group and 8.40 for the controls ($p < .001$). A total scale raw score of 21 or more is considered to denote disturbed behavior; thus, the emotionally disturbed group secured a mean within the disturbed behavior range.

The results of the WPBIC were then analyzed relative to the 144 children's metal levels. Table 4 represents a zero-order correlation matrix between metals, WPBIC measures, and social class, sex, and age.

A hierarchical multiple regression analysis (Cohen & Cohen, 1983) was conducted on each of the five Walker scales in addition to the total scale. The independent variables were entered in a series of three sets in the following order: (a) the control variables of age, sex, and socioeconomic status, (b) the metals of lead, mercury, arsenic, cadmium, and aluminum, and (c) the interactions of every pair of metals. Interest focused on the incremental increase in explained variance by the metals after the control variables had been taken into account, and the contribution of the interactions over and above the control variables and the metals. Within each set of independent variables, a stepwise procedure was used to determine which metals and interactions contributed the largest degree of unique variance, given that the set as a whole was significant.

With 144 subjects, it was found that *power* = .95 for detecting a significant squared semipartial correlation with the control variables partialed from the metals at $\alpha = .05$, assuming an effect size of .15 (following recommendations in Cohen & Cohen, 1983). However, *power* = .10 for detecting a significant squared semipartial correlation with the control variables and the metals partialed from the interactions at $\alpha = .05$, assuming an effect size of .02, a sample size of 680 would have been required. Since the actual sample size of 144 subjects stretched the resources of the researchers, the alpha level used to test the interaction set was .10.

For the total scale, 20% of the variance was accounted for by the set of metals, over and above the set of covariates. The unique contribution of the set of metals was significant [$F(5,135) = 9.10$, $p < .01$]. Of the set of metals, lead accounted for nearly 12% of the variance [$F(1,139) = 24.39$, $p < .01$] and mercury accounted for an additional 7% of the variance [$F(5,138) = 16.26$, $p < .01$] after lead had entered the equation. No other metals were significant.

About 5% of the variance in the total scale was accounted for by the set of ten interactions, over and above the sets of covariates and metals. This incremental increase was not significant [$F(10,125) = 1.26$, $p > .10$].

For Scale 1, over 14% of the variance was explained by the set of metals after controlling for age, sex, and social class [$F(5,135) = 5.89$, $p < .01$]. Mercury accounted for 8% of the variance [$F(1,139) = 15.91$, $p < .01$] and lead explained almost 6% after mercury had been taken into account [$F(5,138) = 11.96$, $p < .01$]. No other metals were significant.

TABLE 3

Comparison of WPBIC Scores Among Two Groups

Scale	Emotionally Disturbed Group Mean	± S.D.	Control Group Mean	± S.D.	T value	Raw Score Denoting Disturbed Behavior
Total Scale	30.00	13.06	8.40	8.04	-11.73	21
Acting-Out	11.75	6.59	2.81	3.92	-9.88	8
Withdrawal	2.54	3.10	0.47	1.16	-5.81	5
Distractibility	6.83	2.33	3.34	2.98	-5.45	6
Disturbed peer relations	5.16	4.33	1.10	1.87	-7.82	3
Immaturity	3.75	2.93	0.76	1.55	-11.73	3

*p < .001

TABLE 4

Correlation Matrix: WPBIC Scales, Age, Sex, Social Class, and Metals (N = 144)

	Lead	Ars	Hg	Cd	Al	S_1	S_2	S_3	S_4	S_5	TS	Age	Sex	Social Class
Lead		.24*	.00	.46*	.38*	.39*	.21*	.51*	.32*	.42*	.47*	.03	.23*	.15
Ars			-.00	.30*	.23*	.10	-.08	.22*	.00	.03	.07	.18*	.23*	-.11
Hg				.05	.27*	.21*	.04	.00	.28*	.14*	.20*	.11	-.19*	-.08
Cd					.18*	.21	.00	.32*	.25*	.15*	.26*	.19*	.12	-.00
Al						.20*	-.02	.31*	.22*	.18*	.24*	-.10	.03	.09
S_1							.37*	.59*	.57*	.53*	.88*	.21*	.27*	.27*
S_2								.28*	.46*	.57*	.59*	-.02	.16*	.22*
S_3									.50*	.46*	.74*	.15*	.25*	.25*
S_4										.55*	.80*	.12	.11	.16*
S_5											.75*	.20*	.09	.29*
TS												.20*	.24*	.30*
Age													.01	-.06
Sex														.03
Social Class														

Note: S_1 Acting-out; S_2 Withdrawal; S_3 Distractibility; S_4 Disturbed Peer Relations; S_5 Immaturity; TS Total Score

* $p < .05$

Over 8% of the variance in Scale 1 scores was explained by the set of interactions after accounting for the sets of demographic variables and metals, which was significant [$F(10,125) = 1.84$, $p < .10$]. The interactions of arsenic with aluminum [$F(1,134) = 3.45$, $p < .10$], lead with aluminum [$F(1,133) = 5.25$, $p < .05$], and cadmium with aluminum [$F(1,132) = 3.27$, $p < .10$] were significant.

For scales 2, 3, and 4, sets of metals made significant contributions to the explained variance, over and above the covariates {Scale 2 [$F(5,135) = 2.36$, $p < .05$], Scale 3 [$F(5,135) = 7.54$, $p < .01$], Scale 4 [$F(5,135) = 3.93$, $p < .01$]}. However, the sets of interactions were not significant.

Of the 7% of the variance in Scale 2 scores explained by the metal set, lead accounted for over 2% [$F(1,139) = 3.17$, $p < .10$] and arsenic also accounted for over 2% [$F(1,138) = 3.59$, $p < .10$]. Of the 18% of the variance in Scale 3 scores explained by the metal set, lead accounted for about 15% [$F(1,139) = 30.72$, $p < .01$] and aluminum accounted for just over 2% [$F(1,138) = 4.95$, $p < .05$]. Of the 21% of the variance in Scale 4 explained by the metal set, mercury accounted for over 13% [$F(1,139) = 22.86$, $p < .01$], lead for over 4% [$F(1,138) = 8.24$, $p < .01$].

For Scale 5, 16% of the variance was accounted for by the set of metals, over and above the set of covariates [$F(5,135) = 6.13$, $p < .01$]. Lead explained 12% of the variance [$F(1,139) = 22.37$, $p < .01$], followed by mercury with 3% of the variance explained by its unique contribution after lead had entered the equation [$F(1,138) = 5.85$, $p < .05$]. An additional 8% of the variance in Scale 5 scores was accounted for by the set of interactions, over and above the sets of covariates and metals [$F(10,125) = 1.66$, $p < .10$]. The interactions of cadmium with aluminum and mercury with cadmium each accounted for about 2% of the variance [$F(1,134) = 5.05$, $p < .05$ and $F(1,133) = 3.32$, $p < .10$, respectively].

As a group, the covariates age, sex, and social class accounted for almost 20% of the total scale variance, 18% of the Scale 1 variance, 7% of the Scale 2 variance, 17% of the Scale 3 variance, 5% of the Scale 4 variance, and 13% of the Scale 5 variance.

DISCUSSION

The data of this study do not establish a causative relationship but show an association between metal and metal combination concentrations and behavioral deficits in children. Disturbed children had significantly higher lead and mercury levels, and regression data indicated that increases in the set of metals were associated with significantly higher scores on all six WPBIC measures with lead being an important contributor, and metal combinations were significantly related to higher scores on acting-out and immaturity. The R^2 value between lead concentrations and total scale score was 0.2276, thus indicating approximately 22% of the variance of the total scale scores of the 144 subjects may perhaps be accounted for by their lead levels.

The dose-response relationship reported here is in agreement with two previous studies, which reported significant relationships between hair-lead concentrations and WPBIC measures. Although not controlling for confounding variables, Marlowe and Errera (1982b) reported an R^2 value of 0.2554 between low lead concentrations and WPBIC total scale score ($N = 55$), and in a similar research paradigm Marlowe and Errera (1982a) reported an R^2 value of 0.0941, while controlling for social class ($N = 47$).

Although arsenic, mercury, and aluminum as predictive factors may represent nutritional peculiarities (e.g., controls had higher arsenic levels), the significantly higher lead content relates to a specific literature. The role of lead

toxicity on behavioral development is well established. Although the disturbed children showed considerably lower amounts of lead than those regarded as toxic, increasing evidence suggests that exposure to low concentrations of lead also has deleterious effects on behavior. While not controlling for other environmental toxins, Needleman et al. (1979) offered evidence that lead exerts its neurotoxic effects over a continuum. Part of their study examined the relationship between teachers' ratings of children on an informal 11-item classroom behavior scale and the children's dentine lead levels (N = 2,146). The relationship of negative reports increased in a dose related fashion for all 11 items. Despite the occasional appearance in the literature of a negative study, the data on low level lead toxicity have been sufficiently convincing that the United States Environmental Protection Agency (1978) concluded that "surprisingly low levels of blood lead can at times be associated with the most extreme effects of lead poisoning, including severe irreversible brain damage," and further that "evidence tends to confirm that some type of neural damage does exist in asymptomatic children and not necessarily only at very high levels of blood lead."

The effects of low level mercury are little understood, although recent studies have linked low mercury levels to childhood learning problems (Cameron, Wunderlich, & Loop, 1978; Capel, Pinnock, Dorrell, Williams, & Grant, 1981). The R^2 value between mercury concentrations and total scale score was 0.0439, and a previous study (Marlowe & Errera, 1982a) reported an R^2 value of 0.0444 between mercury concentrations and WPBIC total scale score (N = 47). Similarly, the R^2 value between aluminum concentrations and total scale score was 0.0576, and the above cited previous study by Marlowe and Errera reported an R^2 value of 0.1600 between aluminum levels and total scale score.

Rimland and Larson (1983) reviewed all available studies on the relationship between hair metal levels and behavioral pathology (N = 51). They concluded that increased levels of lead and cadmium and to a lesser extent aluminum and mercury play an important role in a wide range of learning and behavioral disorders.

The behavioral disorders described in clinical and experimental poisoning are extremely variable and complex. The data of this study also demonstrate behavioral variability and inconsistency, inasmuch as WPBIC scales measuring such oppositional behaviors as acting-out and withdrawal both correlated positively and significantly with the metal set. It may be one should consider the nature of metal induced changes as a randomization of behavioral responses or as a generalized hyperreactivity. This hyperreactivity would be situation-dependent and highly responsive to sensory stimuli, which might account for the variability reported in this and other behavioral studies.

The data of this study indicate the continuing need to reexamine metal poisoning concentrations, because concentrations of metal and metal combinations previously thought harmless may now have to be considered metal poisoning and viewed as an etiological factor in intellectual/behavioral dysfunctions. Lead is the only metal that has even been marginally examined for low level effects.

The biological and developmental significance of our findings is not clear. While warranting replication, the increased WPBIC scores may be functional evidence of low level metal induced neuronal damage. Recent neurochemical studies of low level lead exposure confirm that lead at low levels is a potent neurotoxin (Silbergeld & Hruska, 1980), and its effects are demonstrable in

neuronal systems using acetylcholine, catecholamines, and GABA as transmitters. These studies caution against assuming the existence of a "safe" level of metal exposure and raise concerns the neuron may be irreversibly damaged by any exposure to metal.

Implications for Educators

Special educators and other school personnel can play a significant role in the detection of metal pollutant exposure in children through awareness of its symptoms. These include decreased learning, attentional deficits, irritability, listlessness, anemia, clumsiness, loss of appetite, headaches, and chronic abdominal pain. Since such symptoms are also associated with other illnesses (e.g., viral infections, allergies), educators should also be aware of factors making a child a high-risk candidate for metal pollutant exposure. These include living in dilapidated substandard housing which often contains peeling, lead-based paint and plaster as well as leaded household dust, residential proximity to heavy traffic patterns and/or smeltering emissions, inadequate nutrition, and having the habit of pica. Teachers can have parents complete the Metal Exposure Questionnaire (Marlowe, 1983) in order to obtain quantifiable information about the child's habits and metal exposure in his/her environment.

Children presenting symptomatology of metal pollutant exposure, and/or whose habits and environment pose substantial metal risks, should be screened to determine the seriousness of their exposure. Initial testing for the presence of metals can be detected through blood or hair specimens.

Educational management of metal exposure involves family education to reduce exposure by hazard abatement and by improved nutrition. Also, teachers should develop behavior management programs to eliminate pica in children and should introduce health curriculum on metal exposure prevention. Any child with evidence of increased metal absorption should be followed at regular intervals to determine any neurological or behavioral dysfunction that may ensue and to prevent further exposure.

In summary, there is a need for a broad interdisciplinary approach to the investigation of toxic metals n relation to human behavior. Biochemical as well as behavioral evidence must be integrated into a theory that explains the phenomena clearly yet comprehensively. Finally, if sufficient progress is made, then prevention of particular behavioral disorders in children tied to metal toxins may be possible. This should ameliorate classroom instruction.

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Reconciling Educational Rights of Handicapped Pupils with the School Disciplinary Code

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During the past 15 years litigation and legislation on behalf of handicapped children have had a profound impact on public school programs in the United States. Public Law 94-142, the *Education for All Handicapped Children Act* (1975), through the spending power of Congress, has created national educational policy for handicapped students. This legislation and similar legislation and regulations in all 50 states have granted handicapped students the right to a free appropriate public education. While the educational needs of handicapped youngsters have been addressed by statutes and regulations, disciplinary problems of these pupils have been ignored.

This paper summarizes litigation in regard to suspension and expulsion of handicapped pupils, reviews issues related to disciplinary exclusion of this group, and finally suggests steps that advocates concerned with this problem can take.

THE DILEMMA

Problems associated with maintaining order in the schools are a source of continuing public concern; recent polls on attitudes toward education have consistently identified discipline as a major issue (Gallup, 1983). Most school districts during the past few years have developed written codes of student conduct which contain due process provisions for short term suspension that conform to the Supreme Court's *Goss v. Lopez* (1975) decision (NASSP, 1981). Current regulations that clarify the implementation of the *Education for All Handicapped Children Act* do not discuss disciplinary procedures. New regulations addressing disciplinary policy and handicapped children were withdrawn by the Secretary of Education in the fall of 1982.

Handicapped students, like their nonhandicapped peers, violate school rules; occasionally they disobey their teachers, defy school authorities, and are truant. School systems across the country are discovering that in light of regulations governing education for the handicapped, parents and advocates are challenging schools' disciplinary procedures. Administrators charged with maintaining order in the schools face a dilemma. How can they promote an atmosphere conducive to learning and meet the educational needs of disruptive or unruly handicapped pupils? In attempting to judiciously enforce the code of student conduct, should the schools' disciplinary authority treat learning disabled, mentally retarded, or seriously emotionally disturbed youth in the same manner as other students? This dilemma stems in part from the fact that public education, while adopting a policy of individualizing educational services for handicapped children, has not concommitantly individualized disciplinary procedures for these children.

JUDICIAL RESPONSE

During the past 5 years parents of suspended and expelled handicapped students have challenged school disciplinary procedures in local and state administrative hearings and in court. Issues raised at these hearings and in court revolve around the following questions:

- Is suspension or expulsion of a handicapped pupil a change in educational placement, and as such, dies it entitle students to the procedural safeguards of the *Education for All Handicapped Children Act?*
- Can a handicapped student be suspended for misbehavior related to a handicapping condition?
- If misbehavior is related to a handicapping condition, is suspension or expulsion a denial of free appropriate public eduation guaranteed by the *Education for all Handicapped Children Act?*

Suspension

Most of the courts have not considered short-term suspension a change in educational placement (*Stanley v. School Administrative District No. 40,* 1980; *Board of Education of Peoria v. Illinois State Board of Education,* 1982). Procedures that follow the *Goss v. Lopez* (1975) requirements have generally been rules acceptable by the courts. These requirements, for suspensions of 10 days or less, require an informal meeting with the school's disciplinary authority prior to suspension. In addressing this issue, the U.S. District Court for Northern Indiana rules that handicapped pupils can be suspended for misbehavior related to their handicapping condition and that suspension should trigger a review of the appropriateness and restrictiveness of the child's placement (*Doe v. Koger,* 1979). Finally, no judicial decisions have ruled that suspension of handicapped pupils is a denial of free appropriate public education guaranteed by the *Education for All Handicapped Children Act.*

Expulsion

In contrast to suspension, expulsion has been considered a change in educational placement by a number of courts (*Blue v. New Haven Board of Education,* 1981; *Kaelin v. Grubbs,* 1982; *S-1 v. Turlington,* 1981; *Stuart v. Nappi,* 1978). Accordingly, handicapped pupils faced with possible expulsion because of disciplinary violations should be afforded the formal due process safeguards of the *Education for All Handicapped Children Act* (EHA). In regard to whether handicapped students can be expelled for misbehavior related to their handicapping condition, the courts have not responded with unanimity. Various judicial decisions suggest that schools that accept monies under the provisions of the *EHA* are prohibited from expelling students whose disruptive behavior is related to their handicapping condition, and that appropriately placed handicapped pupils can be expelled in the same manner as other children (*Doe v. Koger,* 1979); and paradoxically, that expulsion is an appropriate form of discipline for handicapped pupils but termination of all educational services is not acceptable (*S-1 v. Turlington,* 1981). A more thorough review of the litigation can be found in Adamson (1984), Grosenick, Huntze, Kocham, Peterson, Robertshaw, & Wood (1981), and Leone (in press).

While judicial decisions provide general guidelines in regard to disciplinary policy and handicapped pupils, they provide little direction to educators attempting to accommodate the needs of handicapped pupils attending their

schools. Educators and advocates interested in developing humane disciplinary policies for all pupils need information and strategies to address the problem.

The suggestion has been made that disciplinary provisions should be included in IEPs (individualized education plans) for behaviorally disordered pupils (Barnette & Parker, 1982; *Pratt v. Board of Education of Frederick Co.*, 1980). This approach however, changes the focus of the IEP and turns it into a punitive rather than an educational device for some pupils.

Clearly, schools need to acknowledge and deal with disciplinary problems of handicapped students in an even-handed manner. In a number of suits, courts have required that persons "knowledgeable" must decide whether a relationship exists between misbehavior and a handicapping condition (*Doe v. Koger*, 1979; *S-1 v. Turlington*, 1981). At the present time, if asked how they would determine whether a student's misbehavior is related to his or her handicapping condition, many administrators, even after consulting with special educators, would have difficulty describing specific procedures or guidelines for making a decision.

Parents should not have to resort to administrative hearings if their handicapped son or daughter is involved in serious violations of school rules. Advocates can prompt schools and school systems to address problems associated with disciplinary policy and handicapped students. Schools responding to concerns raised by parents and advocates need to (a) review and possibly revise their disciplinary code, (b) develop guidelines for determining whether or not a student's misbehavior is related to his or her handicapping condition, and (c) develop alternatives to suspension and expulsion.

REVIEWING THE DISCIPLINARY CODE

A review of the school's disciplinary code should involve parents, teachers, and administrators. Persons charged with reviewing and/or modifying their schools' disciplinary code and its impact on handicapped children need to have a good grasp of the substantive and procedural rights granted to handicapped students and their parents. Those reviewing the disciplinary codes should also know that the issue they are grappling with, suspension and expulsion procedures, has been addressed by a number of courts in recent years. A review of the cases (Leone, in press) and the major thrust of the decisions may be appropriate. Teams of administrators, parents, and teachers should also recognize that accommodating the needs of handicapped children and adolescents within the disciplinary code is in line with the fairness intent of *Goss v. Lopez* (1975) and the mandates of PL 94-142. Finally, a committee reviewing and/or modifying the disciplinary code may want to develop a series of questions or decision points to guide their deliberations. The questions that follow could be used as a starting point in reviewing current disciplinary procedures:

1. Does the code or disciplinary policy specify the frequency or intensity of behavior that necessitates action by the school's disciplinary authority?
2. Is behavior that poses a serious physical threat to the well being of the student or others differentiated from serious misbehavior that doesn't pose such a threat?
3. Do the procedures contain a provision for determining whether the student is handicapped or is receiving special education or related services?
4. Does the code or disciplinary policy contain a provision for determining

whether or not a relationship exists between a student's handicapping condition and misbehavior?

Clarifying the Relationship Between Misbehavior and Handicapping Conditions

The second challenge presented earlier, developing guidelines for determining whether or not a relationship exists between students' misbehavior and handicapping conditions, is a difficult and imprecise task. Advocates for behaviorally disordered and other handicapped children should work with administrators to develop specific guidelines for this sensitive issue. Guidelines should include review of a particular child's behavior and systematic deliberation by a team of teachers and administrators. As difficult as the task may seem, educators must accept the responsibility and address this issue. Courts in a number of cases have asked defendant school districts to determine whether a relationship exists between misbehavior and a handicapping condition (*Doe v. Koger*, 1979; *S-1 v. Turlington*, 1981).

Guidelines developed should include a review of the child's previous performance and discussion of the misbehavior with the child. The first step in this process should be a review of the child's academic and disciplinary record. The review should include an examination of file documents, the child's response to previous disciplinary action, and discussion with the child's current and previous teachers. Trends and patterns provide useful information in making a decision. Steady, albeit slow, academic progress for several years followed by little or no academic growth and accompanying behavioral problems may suggest a relationship between misbehavior and the handicapping condition. Similarly, a pattern of misbehavior that suggests a serious lack of judgment and deficient social skills in previous years may indicate a relationship between misconduct and a handicapping condition. Serious acts of misbehavior, atypical for a particular child, and unaccompanied by changes in placement or academic progress, may suggest no relationship between a specific child's handicap and misbehavior.

A discussion of the misbehavior with the child may provide additional information and can provide valuable insight into the child's understanding of the problem. Acts defined as malicious or revengeful by school authorities may be misdirected attention-getting behaviors.

Finally, the behavior and academic performance of each and every handicapped child being considered for suspension or expulsion under disciplinary code guidelines should be reviewed independently. Educators should resist making unilateral decisions on the basis of a child's disability or handicapping label. If it is determined that a relationship between a child's handicapping condition and misbehavior exists, an IEP meeting should be convened to examine the appropriateness and restrictiveness of the current placement and to review the child's academic progress.

Some have suggested that trying to determine the relationship between a child's handicapping condition and misbehavior is a pointless exercise and that all children should be treated in the same manner by the school's disciplinary authority (Dagley, 1982). A similar position, prior to the passage of PL 94-142 in 1975, resulted in the exclusion and inappropriate placement of millions of handicapped school children.

Alternatives to Suspension and Expulsion

A third concern that advocates can bring to the attention of administrators involves alternatives to suspension and expulsion for serious violations of the school code. Many alternatives to suspension and expulsion are appropriate for handicapped and nonhandicapped youngsters (Grosenick & Huntze, 1984). Timeout rooms, alternative education programs, student ombudsman programs, and peer counseling systems are a few of the options being utilized by school districts around the country (National Institute of Education, 1979).

Advocates working with school administrators can develop alternatives for their school systems. To be effective, any alternatives to disciplinary exclusion should have student and parent input and support. Alternatives, as they are implemented should be fine tuned to respond to unanticipated problems.

In addition to exploring alternatives to suspension and expulsion, advocates can emphasize the importance of preventing disciplinary problems. Behaviorally disordered youngsters, like many other handicapped and disadvantaged students, achieve at a lower rate than their age-level peers. While academic underachievement per se does not create discipline problems, students who receive instruction they don't understand, who are given books they have difficulty reading, and who are not involved in school activities are more likely to misbehave than other students. Advocates can press school administrators to examine IEPs and instruction delivered to handicapped pupils. Appropriate, properly paced instruction will not eliminate behavior problems for all pupils but it won't exacerbate problems of children who have frequently experienced failure in the past.

A Final Note

When schools suspend or expel students for serious acts of misbehavior, they contribute to student's behavior problems. Exclusion from school becomes a nefarious contingency of reinforcement (Kauffman, 1981); that is, schools reward serious violation of the disciplinary code by excluding students who dislike school and are unsuccessful. Very little data are available on the frequency of suspension and expulsion of handicapped pupils. However, U.S. Department of Education, Office for Civil Rights data (1978-79) and the Children's Defense Fund's 1975 report, *School Suspensions — Are They Helping Children?*, suggest that suspensions (a) are not a deterrent to misbehavior, (b) are used disproportionately with black, poor, and male students, and (c) are often imposed arbitrarily.

In increasing numbers, handicapped children and adolescents are being educated in least restrictive environments in the public schools. Advocates for behaviorally disordered and other handicapped children need to take an active role in reviewing and/or modifying school disciplinary codes, determining whether links between handicapping conditions and misbehavior exist when asked to do so, and developing alternatives to suspension and expulsion of students. If advocates and educators fail to address problems associated with serious misbehavior, school policy, and handicapped children, the parents of these youngsters will have to continue to litigate to secure equal access to the schools for their children.

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Teacher's Perception of Stress and Coping Skills

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ABSTRACT

Responses to a questionnaire regarding stress and coping skills were collected from 410 educators. From these responses it appears that these teachers perceive many situations as stressful, with administration variables as the most stressful. Most of the participants (66%) felt their schools did not help relieve their stress. Actually, many felt it caused or added to their stress. After administration variables, the respondents found student behaviors, paperwork, and a variety of other factors as stressful. In addition, the common response to stress was to internalize the stress. This was followed by talking to a safe person, engaging in alternative activities, and an assortment of other coping skills. Unfortunately, it appears that the schools do not have an organized method to assist in relieving stress.

Stress has received considerable attention in recent years (Levinson, 1970; Maslow, 1971; Schafer. 1978; Selye, 1976) and is an occupational hazard of many professions (Cherniss, 1980; Freudenberger, 1977; Maslah & Jackson, 1979; Pines & Kafry, 1978) including education (McGuire, 1979). Exactly what causes this stress in education is difficult to determine due to the varying degrees of tolerance exhibited in individual personalities. However, some of the more common sources of stress for educators identified in the literature are work overload (Cooper & Marshall, 1976; Kyriacou & Sutcliffe, 1977; Lortie, 1975), large class size (Maslach & Pines, 1977; Olsen & Matuskey, 1982; Rudd & Wiseman, 1962; Stevenson & Milt, 1975), negative student behaviors (Lortie, 1975; Olsen & Matuskey, 982), pupil misbehavior (Kyriacou & Sutcliffe, 1977; Lortie, 1975; Olsen & Matuskey, 1982), lack of perceived success (Freudenberger, 1977; Kyriacou & Sutcliffe, 1978a; Pines & Kafry, 1978), low salaries (Olsen & Matuskey, 1982; Stevenson & Milt, 1975), and lack of administrative support (Lawrenson & McKinnon, 1982; Weiskopf, 1980).

The result of this perceived stress is frequently a high attrition rate (Cook & Leffingwell, 1982; Huntze & Grosenick, 1980; Lawrenson & McKinnon, 1982; McGuire, 1979). Lloyd (1980) reported that 28% of all teachers had 20 years experience in 1962, but by 1976 that percentage had declined to 14%. Reflecting on this report, it becomes apparent that teachers are leaving education for other occupations. To that extent, the National Education Association (NEA) urges "that the harmful effects of stress on teachers and other school personnel be recognized," and "it demands procedures that will ensure confidentiality and treatment without personal jeopardy" (NEA Resolution E79-81, 1979, p. 211).

Stress appears to be a reality in all areas of education, including both regular education (Coates & Thorenson, 1976; Kyriacou & Sutcliffe, 1977, 1978a, 1978b; Lortie, 1975; Rudd & Wiseman, 1962) and special education (Bensky,

Shaw, Grouse, Bates, Dixon, & Beane, 1980; Cook & Leffingwell, 1982; Fimian & Santoro, 1983; Olsen & Matuskey, 1982; Schloss, Sedlack, Wiggins, & Ramsey, 1983; Weiskopf, 1980; Zabel & Zabel, 1980, 1982). Therefore, the purpose of this investigation was to identify: (a) those factors perceived as stressful by both regular and special education teachers; (b) whether those teachers felt the school helped, or did not help, to reduce their stress; and (c) the coping skills used by those teachers for dealing with stress.

METHOD

Subjects

The subjects participating in this study were 410 educators located in two geographic areas (i.e., the southwestern [*N* = 162] and midwestern [*N* = 248] regions of the United States). The participants were regular and special education teachers who were currently in teaching positions, and/or attending graduate level clases or inservice workshops. Demographic information pertaining to the subjects is presented in Table 1.

As Table 1 indicates, the sample was predominately female due to the fact that teaching positions have traditionally been filled predominately by females. In addition, only 99% of the sample indicted their age. The 1% that did not reveal their age were all female respondents. The authors also feel it is interesting to note that as the age increases, the frequency with which teachers remain in the teaching profession decreases. This trend has been noted elsewhere (Lloyd, 1980). Finally, Table 1 shows that while a slight majority of the subjects were trained in regular education programs, a slight majority of those subjects were placed in special education programs.

Procedure

The survey material consisted of a demographic form and three open-ended questions. The demographic information pertained to sex, age by clusters, training, and placement. The three open-ended questions were: (a) Those stressors which regularly increase or maintain a high stress level for me are . . .; (b) When feeling under stress, my school helps (does not help) to reduce my stress . . .; and (c) When feeling under stress, I . . . . After a brief description of the study and instructions to complete the form, they were asked to complete the demographic information and to answer in writing the three open-ended questions. Of the 499 survey forms distributed, 410 (82%) were completed and returned. The authors feel this high return rate indicates that many teachers are

TABLE 1

Subjects' Demographic Information

Sex		Age*		Training and Placement	
Male	13%	18 - 30	34%	Regular Education Training	53%
Female	87%	31 - 40	39%	Special Education Training	47%
		41 - 50	18%	Regular Education Placement	45%
		51 - 60	7%	Special Education Placement	55%

Note: Percentages are rounded off to the nearest whole number.

* 1% of subjects did not reveal their age.

concerned with stress and its relationship to their lives and jobs.

RESULTS AND DISCUSSION

Responses to the three open-ended questions were tabulated and are reported in percentages for each of the three areas on the survey. These percentages were rounded off to the nearest whole number except for those frequencies below 1%. In those instances, the percentages reflect accurate frequencies.

In tabulating the responses, the investigators discovered that many of the participants in this investigation included more than one response for each question. This was not surprising since people perceive many different situations as stressful and the participants were not limited to one response. However, in reporting these percentages the reader will find that they exceed 100%.

Stressors

There were a variety of responses to the first question (i.e., Those stressors which regularly increase or maintain a high stress level for me are . . .). Those variables the respondents found to be stressful and the percentages of those responses are shown in Table 2.

As Table 2 indicates, administration variables (e.g., no leadership, support, communication, or follow-up; disorganization leading to inconsistencies within the administration; and poor administrative attitude towards teachers) was the dominate response. After administrative variables, the respondents ranked student behaviors, pressure, and paperwork as the most stressful to them. Student behaviors included all forms of discipline problems, from the apathetic and indifferent student to the rude, antagonistic, wild, and/or violent student. Pressure also included a host of variables and was generally found to be intrinsic. Many teachers had high expectations for their students and themselves. They felt that as teachers they had a lot of responsibilities and consequently perceived their own inadequacies for not meeting students' needs as

TABLE 2

Variables That Increase or Maintain a High Stress Level

Administration	37%
Student Behavior	26%
Pressure	20%
Paperwork	18%
Incompetence	12%
Parents	12%
Inadequate Salary	7%
Staff Conflicts	5%
No Student Progress	3%
No Recognition	3%
No Materials	3%
Others Not Understanding Students Or Program	1%
Dishonesty	0.5%
Gossip	0.5%

stressful. Other pressure situations involved deadlines, too little time and too much work, and the anticipation of the unknown and when it might happen. Paperwork was the next variable the respondents perceived as stressful. Many of these teachers stated that they entered the teaching profession to teach. However, they felt prohibited from teaching by the vast amount of paperwork that must constantly be completed. Incompetence and parents were the next variables to be viewed as stressful by the respondents, followed by an array of variables that were perceived as stressful.

These stress variables were then analyzed according to sex, age, and training and placement in order to determine if certain groups perceived stress differently. Both males and females ranked administration and student behaviors as the most stressful. Although the remaining variables differ according to rank order, the percentages of responses from both sexes remained equivalent with the exception of perceived pressure. Of the female responses 22% indicated they viewed pressure as stressful, while only 9% of the males responded to that variable.

As with sex, the breakdown according to age revealed administration and student behaviors to be the two most common complaints. However, the age groupings also demonstrated some interesting relationships. The percentage of people responding to paperwork increased with age, while incompetence, parents, and inadequate salary decreased with age. Finally, regardless of training and placement, both administration and student behaviors were again regarded as the two most common stressors. The differences reported between regular and special education teachers were small with regular educators viewing both administration and student behaviors as slightly more stressful than special educators. In contrast, special educators found paperwork and incompetence to be slightly more stressful than regular educators.

School's Response to Stress

Regarding the second question, "When feeling under stress my school helps (does not help) to reduce my stress by . . . , 34% of the participants responded that the school does help and 66% responded that the school does not help. Those that felt the school did help reduce stress (34%) thought they did so by listening, being supportive, recognizing specific needs, providing release/relief time, and verbal praise. Some of this support was provided by the administration; however in many instances, this support was provided by other teachers. In addition, a small number of teachers (1%) replied that their schools helped by allowing them to work with children. Nevertheless, the vast majority of the respondents felt the school did not help in reducing stress. Many participants replied that the school either caused the stress or added to it (which is not very surprising considering the administration was the most common stress variable). The underlying theme to these responses was that there was no support, no feeling or caring for one another, and that the school was totally apathetic. When seeking assistance, the teachers met with postponement and indifference, and were given useless promises of future changes and improvements that seldom happened. One teacher quoted her administration as saying "It's not my problem." Other teachers replied that it was their administration's viewpoint that you help yourself or leave the job. After all, if they could not handle it, there were many more waiting to try.

Coping Skills

Responses to the third question, When feeling under stress I ..., revealed a multitude of coping skills being utilized by the participants. This variety of responses indicated that the participants' skill at coping with stress tends to be an individual matter. Table 3 lists those coping skills recorded and the percentages of those responses.

Table 3 shows the three most common responses were internalizing stress, talking to a safe person, and alternative activities. When presented with a stressful situation the most common response was to internalize that stress, to become nervous, anxious, depressed, and irritable. This approach to stress is not really a coping skill, but probably explains the burnout rate due to stress. The other two common responses are coping skills. Many participants responded to stress by talking to a safe person (e.g., a colleague, a friend, a member of their family). Likewise, engaging in alternative activities was a common coping skill. Some of the more common activities that the participants surveyed recorded were taking a day off from teaching, reading, going out to eat and/or a movie, drinking alcohol, and having sexual relations.

Although talkng to a safe person, alternative activities, and the remaining responses allow the individuals the opportunity to vent their frustrations, very few deal directly with the problem. Only 10% of the participants responded that they rationally think the problem to a conclusion, 3% said they would change the classrom structure and/or activities in an attempt to solve the problem, 2% replied they would deal directly with the stressor, 1% answered they would complain to someone in authority (e.g., a principal or supervisor), and 0.4% responded that they go back to school to upgrade their education in order to find solutions. The other responses may help the individual cope with their

TABLE 3

How Participants Coped With Stress

Internalize Stress	32%
Talk To A Safe Person	30%
Alternative Activities (Social)	28%
Relax	17%
Physical Exercise	12%
Rationally Think Problem Out To Conclusion	10%
Displace Frustration	7%
Eat	7%
Prayer	5%
Reflect On Positive Thoughts/Comments	4%
Physical Symptoms	4%
Change Classroom Structure/Activities	3%
Deal Directly With Stressor	2%
Complain To Someone In Authority	1%
Medication	0.5%
Ignore Problem	0.5%
Upgrade Education	0.4%
Professional Counseling	0.2%

frustrations on a temporary basis, but the stressful situation will still be present. This stress developed into physical symptoms of ill health (e.g., headaches, upset stomach) in 4% of the respondents, 0.5% take some form of medication (usually aspirin or valium), and 0.2% sought professional counseling. In addition, 7% of the participants said they displaced their frustrations by taking it out on their families, friends, and students. With these types of coping skills it becomes apparent why stress results in a high attrition rate.

As with the stress variables, these coping skills were analyzed according to sex, age, and training and placement in order to determine differences between these groups in how they cope with stress. Although both males and females rated internalizing stress, talking to a safe person, and alternative activities as their three most common responses, there were differences in the percentages and the order they were ranked. Females (34%) internalized stress at a higher rate than males (21%). Females (31%) also talked to a safe person more frequently than males (23%). Furthermore, while females ranked internalizing stress (34%), talking to a safe person (31%), and alternative activities (28%) in the same order as the total sample, males ranked alternative activities (30%) as their most common response, followed by talking to a safe person (23%) and internalizing stress (21%). Even though the remaining responses differed according to rank order, the frequency with which both sexes responded to those coping skills was equivalent. The only exception was reflecting on positive thoughts/comments, with males (19%) outnumbering females (2%).

Once again, as with the stress variables, age revealed some interesting relationships. Internalizing stress and talking to a safe person both decreased with age, while changing the classroom structure and/or activities increased with age. Finally, the only differences revealed by the analysis on training and placement was with talking to a safe person. Special education teachers (36%) talked more frequently with a safe person than either elementary teachers (27%) or secondary teachers (24%).

SUMMARY AND CONCLUSIONS

It appears that the teachers in this study perceive a great deal of school-induced stress. This stress, the authors believe, may explain the decline in the number of teachers remaining in the profession as they grow older. The major stressor identified in this investigation was the administration. Every factor (i.e., total sample, sex, age, and training and placement) expressed administrative variables (e.g., no leadership, support, or communication; disorganization and inconsistencies; and poor attitudes towards teachers) as the major stressor. This finding collaborates other research that has shown administrative variables to be a major source of stress (Lawrenson & McKinnon, 1982; Pines & Kafry, 1978; Weiskopf, 1980). After the major stressor of administrative variables, teachers found student behaviors, pressure, and paperwork to be stressful. These stressors were followed by others' incompetence and parents, and a host of other minor stressors. In addition, the vast majority of the participants in this present investigation felt their school did not help with stress. Many felt the school *added to* their stress or *caused* the stress. One participant even responded that her school viewed stress and burnout as a weakness.

Just as the participants identified a number of variables as stressful, they also identified a number of coping skills. It apperas that the teachers in this study cope with stress in an individual manner. Certain coping skills, however, were found to be more common than others. Internalizing stress, talking to a safe

person, and engaging in alternative activities were the three most common responses identified. These three responses were then followed by a number of other methods. The majority of these responses identified do not deal directly with the stressor. Instead it provided the participant with temporary relief from their frustrations.

It appears that these teachers want to teach and become stresed when something interferes with their teaching. Other research supports this relationship. Both Lawrenson and McKinnon (982) and Sergiovanni (1967) reported working conditions or environment to be dissatisfiers, with the major satisfiers being work related. Lawrenson and McKinnon (1982) found the relationship with students and self-achievement on the job to be the highest ranked satisfiers.

In viewing this situation then, it becomes obvious why these teachers found administrative variables as the most stressful. They view the administration as controlling the working conditions or environment. Likewise, it becomes apparent why internalizing stress was the major response to dealing with stress, and why most of the coping skills did not deal directly with the stressor. These teachers were unwilling to confront the administration, and when they did they were met with postponement, indifference, and/or promises that were seldom kept.

Since teachers often feel powerless to change those situations they find as stressful, it becomes necessary for them to initiate strategies to cope with stress. Weiskopf (1980) provided some guidelines teachers can utilize to protect themselves against the harmful effects of stress: (a) Know in advance the type of stress the job entails, (b) set realistic goals; (c) delegate responsibility for such tasks as paperwork and nonteaching duties, (d) avoid isolaiton from other staff, (e) break up the continuous amount of direct contact with students; (f) stay mentally alert away from the job; (g) get physical exercise; (h) be more creative on the job to alleviate boredom; and (i) participate in hobbies not related to the job.

But much can be done at the administrative level to alleviate teacher stress through program strategy, changes, and interventions (Weiskopf, 1980). Unfortunately, however, there does not appear to be any organized method by the public schools to assist in relieving stress, at least not found by this investigation. Consequently, if school administrations are unwilling to address teacher stress, it seems likely that continued problems can be expected in terms of both staff morale and attrition. Therefore, this issue needs to be addressed if the schools wish to keep experienced teachers.

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Teacher-Owned Versus Student-Owned Problems: Does It Make a Difference?

Jerry B. Hutton and Thomas Turnage

ABSTRACT

Videotapes of teacher-owned and student-owned problems were viewed by 88 teachers who rated each according to five attributional dimensions — causality, controllability, intensionality, stability, and globality. The teachers also wrote a list of "likely" and "ideal" responses to each problem situation. The attributions varied according to who owned the problem, student or teacher. Their likely responses to teacher-owned problems were mostly punitive, but their ideal responses were instructional/supportive. The results confirm the need to identify problem ownership and to train teachers to respond appropriately during times of conflict.

Behavioral approaches to managing problematic students have been promoted in the literature and in practice. However, some critics contend that an understanding of cognitive processes, particularly those involving attributions, may lead to more effective strategies for teaching and managing students (Weiner, Graham, Taylor, & Meyer, 1983). Goldfarb (1980) reviewed the process of dispositional attribution and described how students with behavior disorders may misinterpret observed behavior and consequently engage in irrational action. Others, namely Brophy and Rohrkemper (1981), have investigated how the attributions made by teachers may influence their strategies for responding to the behavior of students.

The Brophy and Rohrkemper (1981) study is particularly interesting in view of its implications for teachers of behaviorally disordered students. The researchers provided vignettes of various problem situations with students and interviewed teachers to determine their attirbutions for the problems as well as their strategies for dealing with each of the problem situations. There were striking differences in attributions and strategies according to problem ownership as defined by Gordon (1974). When the problem situations were of the teacher-owned type, the teachers were likely to perceive students as able to control and intentionally expressing the problem behavior; thus, the students were considered blameworthy for the problems they created. In addition, in the teacher-owned problem situations, the teachers were likely to present restricted goals for the students and to overemphasize the use of punitive or threatening behavior as a strategy to change the behavior. Situations depicting student-owned problems were interpreted by the teachers as unintentionally caused by the students and teachers were more optimistic of being able to produce stable change. Students who owned the problem were viewed as victims of circumstances and the strategies proposed by the teachers were designed to provide support, nurturance, and instruction.

Teachers who direct the learning of students with behavior disorders are in

frequent contact with problem situations which may be characterized as teacher-owned or student-owned problems. If, as suggested by the Brophy and Rohrkemper (1981) study, attributions and strategies vary according to who owns the problem, teachers may benefit from training in problem identification, alternative means of conceptualizing problem situations, and matching effective strategies with the appropriate type of problem.

The present study is a partial replication of the Brophy and Rohrkemper (1981) study. Instead of written vignettes of problem situations, the present study employed video scenarios enacted by elementary school students and the teacher responses to the scenarios were obtained through checklists and written responses rather than interview. An additional feature of the present study is a comparison of type of problem ownership with type of intervention strategy.

METHOD

Subjects

The subjects were 88 teachers attending an inservice training meeting in a suburban school district. The teachers selected the meeting from other possible sessions. Specific information regarding the teachers was not taken. However, a visual inspection of the group and information provided by the school district assisted in describing the teachers as predominately experienced in teaching (more than 3 years), Caucasian, and female. All were elementary teachers and only a few (less than 20) were assigned to music, physical education, or special education positions.

Problem Ownership

Problem ownership is divided by Gordon (1974) into three types: (a) Teacher-owned problems occur when the student's behavior interferes with the teacher's meeting his or her own needs or causes the teacher to feel angry, upset, or frustrated; (b) shared problems occur when the teacher and student interfere with each other's need gratification; and (c) student-owned problems occur when the student's needs are not met due to interference by people or events that do not include the teacher. In the present study four of the vignettes (see Table 1) were selected from the Brophy and Rohrkemper (1981) study. Two represented teacher-owned problems and the other two depicted student-owned problems. The vignettes were developed by Rohrkemper and Brophy (1979) in an earlier study according to Gordon's (1970, 1974) definitions of problem ownership. As in the earlier study by Rohrkemper and Brophy (1979), the present study considered the definition of problem ownership to focus on the problem situation prior to the teacher's intervention. Obviously, problem ownership may shift depending upon the effectiveness of the intervention strategy.

Attributions

The attributions investigated in the present study represented five dimensions that have been studied in regard to people's thinking and behavior in helping situations (Brophy & Rohrkemper, 1981). The five dimensions are causality, controllability, intentionality, stability, and globality. The first dimension, locus of causality (Weiner, 1979), is assessed by asking, "Is the cause of the behavior

internal to the student or external to the student, or both?" Controllability (Weiner, 1979) is assessed by asking, "Can the student control the behavior if he/she wants to or is the behavior beyond the student's capacity for self-control?" Intentionality (Rosenbaum, 1972) is assessed by the question, "Did the student intend to engage in the behavior or was it accidental?" Stability (Weiner, 1979) is assessed by asking, "Is it likely that the observed behavior is consistent from day-to-day or is it erratic, varying from one day to the next?" The last attribution, globality (Abramson, Seligman, & Teasdale, 1978), is assessed by the question, "Is it likely that the observed behavior is consistent from one class to another, or does it vary from class-to-class?"

Intervention Strategy Categories

The 88 teachers were divided into two groups, one attending the morning session and the other attending during the afternoon. The morning group viewed and responded to two video enactments or problem situations, the first depicting a teacher-owned problem and the second, a student-owned problem. The afternoon group viewed two other video scenarios, the first represented a student-owned problem while a teacher-owned problem was presented second. Following each enactment, the teachers indicated their impressions regarding the attribution questions (causality, controllability, intentionality, stability, and globality) and wrote an unspecified number of possible interventions; first, the interventions they would *likely* engage in and then, the interventions that would be *ideal*. The likely interventions were those the teacher reported as his/her typical reactions to the enacted problem situations and the ideal interventions were those which would be engaged in under the best possible circumstances (i.e., the teacher feels good, has time to think about what to do, and considers reactions that most probably will help the child).

All of the written interventions, both likely and ideal, were analyzed after the inservice meeting by placing them into one group and presenting them to 26 special education graduate students who sorted them into two categories, either strategies that were instructive/supportive or punitive. The instructive/-supportive strategies were defined as those reactions to problems which provide support, nurturance, or instruction to assist in alleviating the problem. Strategies defined as punitive are those reactions designed to create an aversive experience for the student through the teacher's efforts to punish, threaten, or penalize the student. The percentage of agreement for each strategy was calculated and strategies that did not meet the 70% criterion for inclusion were discarded (Borg & Gall, 1983). Since the data were at the nominal level of measurement (categorical), the comparisons of problem ownership and attributions as well as problem ownership and teacher response categories were made using chi-square.

RESULTS

The teachers rated the attributions for each scenario. As shown in Table 2, the teachers varied in many of their attributions depending upon problem ownership. When the situation depicted a teacher-owned problem, the teachers were more likely to rate causality as internal to the student than when the situation reflected a student-owned problem. Rather dramatic differences were observed between the teachers' ratings on the next two attributions, controllability and intentionality. When the problem was teacher-owned, the teachers rated the

TABLE 1

Vignettes Selected from the Brophy and Rohlkemper List (1981, pp. 298-299)

Teacher-Owned Problem: Low Achievement

Carl can do good work, but he seldom does. He will try to get out of work. When you speak to him about this, he makes a show of looking serious and pledging reform, but his behavior doesn't change. Just now, you see a typical scene: Carl is making paper airplanes when he is supposed to be working.

Teacher-Owned Problem: Defiance

Squirt guns are not permitted in school. Scott has been squirting other students with his squirt gun. You tell him to bring the squirt gun to you. He refuses, saying that it is his and you have no right to it. You insist, but he remains defiant and starts to become upset. Judging from his past and present behavior, he is not going to surrender the squirt gun voluntarily.

Student-Owned Problem: Immaturity

Greg often loses his belongings, becomes upset, whines, and badgers you to help him. Now he has misplaced his hat, and he is pestering you again. Other students smirk and make remarks about him, and Greg becomes upset.

Student-Owned Problem: Peer Rejection

Kathy is a loner in the classroom and an onlooker on the playground. No one willingly sits with her or plays with her. You divided the class into groups to work on projects, and those in Kathy's group are making unkind remarks about her, loud enough for all to hear.

problem as controllable and intentional, but when the problem was student-owned, the teachers were fairly evenly split between controllable/uncontrollable and intentional/unintentional. Three of the four scenarios were rated by most of the teachers as stable from one day to the next and the majority of the teachers rated all four enactments as global; that is, the behavior is likely to occur in other classrooms.

Following the attribution ratings, the teachers wrote their likely and ideal responses to each of the enactments. The 26 special education graduate students who assigned all interventions or teacher responses to one of two categories, instructional/supportive or punitive, were attending a class on behavior disorders. Very high rater agreement was achieved on the majority of classifications with 100% agreement attained on 22 of the 44 teacher responses to problem situations. Only 7 of the 44 teacher responses had percentage in the 70 range. Four teacher responses were discarded because there was less than 70% agreement that they fit into either of the two intervention categories. The recommendations of Borg and Gall (1983) were followed for establishing agreement. Whenever inferences about observed behavior are made, agreements within the 70 to 80% range are satisfactory.

Of the 44 teacher responses to problem situations, only 14 of the types of responses were classified as punitive. Table 3 shows the chi-square values when each of the four scenarios are scored according to the catregory, teacher response, or intervention strategy, either instructional/supportive or punitive.

According to the data in Table 3, the teachers reported they were likely to respond to the two scenarios enacting teacher-owned problems by saying or

TABLE 2

Chi-square Values for Attribution Ratings According to Problem Ownership

Attributions	Problem Ownership: Teacher-Owned		Student-Owned		Chi-Square
	Defiance	Low Achievement	Immaturity	Peer Rejection	
Causality					
External	5	2	5	1	
Internal	21	30	10	3	
Both	17	13	26	39	46.54[1]
Controllability					
Controllable	43	44	27	15	
Uncontrollable	0	1	14	28	65.52[2]
Intentionality					
Intentional	43	44	19	27	
Unintentional	0	1	22	16	50.95[3]
Stability					
Stable	38	30	35	37	
Unstable	5	15	6	6	8.88[4]
Globality					
Global	42	41	35	40	
Not global	1	4	6	3	4.46[5]

[1] χ^2 (6, N =172) = 46.54, p< .001
[2] χ^2 (3, N =172) = 65.52, p< .001
[3] χ^2 (3, N =172) = 50.95, p< .001
[4] χ^2 (3, N =172) = 8.88, p< .05
[5] χ^2 (3, N =172) = 4.46, *NS*

doing something punitive to the student. Examples of responses which were later classified as punitive are: take the student to the principal's office, give the student a spanking, remove the student from the classroom, and reprimand the student. Their ideal responses to the teacher-owned problems were either more evenly distributed between instructional/supportive and punitive as in the low achievement episode or decidedly more instructional/supportive as in the defiance situation. In contrast, both the likely and ideal responses to student-owned problems were mostly instructional/supportive. Examples of instructional/supportive responses are: reassure the child, offer an alternative activity, give the student a choice, and contract with the student.

DISCUSSION

In general, the present findings are consistent with the results reported by Brophy and Rohrkemper (1981). Teachers are not likely to rate the cause of problem behavior as residing outside the student and students who exhibit problems which frustrate the needs of the teachers (teacher-owned problems) are likely to be viewed by the teachers as capable of self-control and to be intentional in their misbehavior. Further, when the problem was owned by the teacher, the teachers were likely to report that their likely responses to that type of behavior would be punitive. Brophy and Rohrkemper noted that the restricted language of the teachers responding to teacher-owned problem

TABLE 3

Chi-square Values for Category of Teacher Responses According to Problem Ownership

Problem Ownership	Category of Teacher Responses		Chi-Square
	Instructive/ Supportive	Punitive	
Teacher-Owned			
Low Achievement			
Likely Response	14	58	
Ideal Response	21	19	13.08[1]
Defiance			
Likely Response	15	73	
Ideal Response	50	2	87.18[2]
Student—Owned			
Immaturity			
Likely Response	67	9	
Ideal Response	50	2	2.51[3]
Peer Rejection			
Likely Response	53	27	
Ideal Response	73	1	27.12[4]

[1] χ^2 (1, N =112) = 13.08, p< .001
[2] χ^2 (1, N =146) = 87.18, p< .001
[3] χ^2 (1, N =128) = 2.51, *NS*
[4] χ^2 (1, N =154) = 27.12, p< .001

situations, their negative expectations, and their pessimism regarding improvement imply restricted goals which "are reflected in a relative absence of rewards and supportive teacher behavior . . . and in frequent reliance on punishment or threatening/pressuring behavior" (p. 306).

Of particular interest in the present study is the contrast between likely and ideal responses to the problem behaviors. When the problem is teacher-owned, most teachers reported likely responses which were later categorized as punitive. However, their ideal responses to the same enactments were predominately in the instructional/supportive category. The implication is that teachers may *know* what to do in responding to a teacher-owned problem situation but are not likely to do it unless they are trained to respond appropriately. To know what to do does not necessarily mean that one has the ability to do it, particularly in communicating effectively with students during times of conflict. The implication is clear. Teachers in training need supervised practice in responding appropriately to problematic students.

These findings also lend at least partial support to the psychoeducational notion that a "pupil in stress can actually create in others the stressed feelings and at times, the pupil's behavior" (Long & Duffner, 1980, p. 222). When a teacher's need to control the learning situation is frustrated by an acting-out student (teacher-owned problem) the teacher is likely to feel angry and unless trained, the teacher may express the anger by becoming punitive toward the student. The results of the present study suggest that teachers may indeed require training in the process described by Gordon (1970, 1974), responding differentially to problems, depending upon who owns the problem, the teacher or the student.

Additional implications of the study concern reasons why teachers refer students to special education, problems behaviorally disordered students encounter when mainstreaming is attempted, as well as the need for further elaborations of cognitive approaches for use in self-contained classrooms for students with behavior disorders. However, limitations of the present study should be noted. Lack of more descriptive information concerning the teachers who participated in the study limits the generalization of the results. Also, only four of the vignettes were used and shared ownership of problems was not included. Possibly the greatest limitation is the lack of direct observational data to describe what teachers actually think and do when confronted with specific types of problematic behavior.

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Competency Statements and Certification Standards for Teachers of the Behaviorally Disordered: How Do We Decide What Is Important?

Clifford C. Young and Robert A. Gable

According to many authorities, the "art of teaching" is gradually giving way to an emerging science of special education (cf. Shores & Stowitschek, 1978; Ysseldyke & Algozzine, 1982). The magnitude of this shift is reflected by the substantial changes in personnel preparation programs (Kerr & Gable, 1977). As Blackhurst and Hofmeister (1980) have attested, "considerable efforts have been expended to identify and specify competencies for various special education professionals" (p. 216). Traditionally, special education teachers have been trained according to categories of handicapping condition — the learning disabled, behaviorally disordered, or mentally retarded (Hallahan & Kauffman, 1977). Today, many training progams emphasize preparation along noncategorical lines (Belch, 1979; Blackhurst, 1982; *Survey of Exceptional Child Education Endorsements*, 1983) on grounds that: (a) Categories are not educationally relevant as instructional procedures and materials are rarely category-specific; and (b) categorical groupings overlap with individual differences often as great within as across classifications (Gable, Hendrickson, Shores, & Young, 1983). Others have argued that preparing teachers along categorical lines has resulted in redundancies in coursework and barriers to communication within the profession (e.g., Blackhurst, McLaughlin, & Price, 1977).

In the area of behavioral disorders/emotional disturbance (BD/ED), the movement is generally toward specifying teacher competencies within a noncategorical model (Blackhurst et al., 1977; *Survey of Exceptional Child Education Endorsements*, 1983). Proponents of noncategorical teacher preparation contend that the focus of training should be on generic skills of proven effectiveness rather than on skills linked to deficits attributed to child categories (e.g., Blackhurst, 1981; Gable et al., 1983). Practitioners, however, have expressed a preference for categorical preparation, and have indicated that regular education coursework is of value but that special education methods courses should be expanded in scope and number (Lutkemeier, 1983). Finally, special education teachers have reported that field experiences — practicum and student teaching — represent the most important elements of teacher preparation.

Recently, the Delegate Assembly of the Council of Exceptional Children adopted *Standards for the Preparation of Special Education Personnel* (Council for Exceptional Children, 1983). These guidelines represent a first step in attempting to create consistency among special education personnel preparation institutions. If teacher-educators are to comply with these guidelines, renewed emphasis must be directed toward preparing teachers to demonstrate competencies in applied settings (Maple, 1983). Although it seems appropriate

that prospective special educators be trained in effective instructional procedures and have ample opportunity to engage in those teaching acts (Kerr & Gable, 1977; Lutkemeier, 1983; Shroes, Burney, & Wiegerink, 1976), the extent to which teacher training institutions provide this experience is not well documented. An even more pressing issue involves the process and evaluation of teacher training or, as Heller (1983) observed, first, what constitutes direct, qualitative, and intensive . . . teaching? Second, how should participation be measured? . . . in weeks? . . . clock hours? . . . what is the limit below which one would question the quality of such experiences?

In all, a review of the literature shows that a range of factors — from legislative acts to technological advances and professional standards — have led to major changes (e.g., classroom practices, eligibility, service models) in special education (Ysseldyke & Algozzine, 1982). However, knowledge of current BD/ED teacher training and certification practices remains scant. And, although recent discussion has emphasized the field-based aspect of teacher training (Blackhurst, 1982; Heller, 1983), little is known bout the validity of preservice preparation of BD teachers in terms of durability and generalizability of skills. It may be that before we can properly address the issue of teacher competency, it is necessary to examine current training practices and compare these procedures to state certification standards (Parker, 1980).

The purpose of the present investigation was to examine (a) current state department of education criteria for certifying teachers of the behaviorally disordered/emotionally disturbed, (b) the extent to which training programs provide laboratory-clinical-practicum experiences prior to and including the student teaching experience, and (c) current preparation practices in light of the noncategorical teacher training movement.

PROCEDURES

State Certification Practices

Each state department of education sets that state's policy on requirements for certification to teach the behaviorally disordered/emotionally disturbed. While some offer reciprocity through cooperative agreements, other states require teachers applying for special education certification to complete coursework and/or supervised teaching prior to receiving full certification. To ascertain current practices, a letter was mailed to the directors of the 50 state departments of education requesting information on certification standards for BD/ED teachers. Information requested included the following: (a) whether the state issued noncategorical, multicategorical, or generic certification in special education; (b) if regular certification was required in addition to special education certification; (c) if the state employed a standardized, competency-based examination; (d) the number and type of practica required prior to student teaching; (e) specific student teaching requirements governing the types of settings and populations of handicapped students; and finally, (f) if the state established a minimum number of hours for student teaching prior to granting certification. A follow-up letter was sent 6 weeks after the original request to nonrespondents.

Personnel Preparation Practices

In most states, the department of education grants certification based either on

a state department official endorsement or through a report from the training institution that the applicant has met the requirements. While state departments may dictate minimum requirements, training institutions are usually free to exceed that required by the state department. It was anticipated that personnel preparation programs would vary in the depth and breadth to which they trained teachers. Therefore, a three-phase inquiry was conducted to obtain comparable information from training programs concurrent to the survey of the state departments of education.

Contacted initially were 56 personnel preparation institutions through a mail survey that requested information on: (a) whether the institution considered the program to be noncategorical, multicategorical, generic or categorical; (b) if the program was based on a written set of competencies; (c) if trainees were required to complete a regular in addition to a special education program; (d) the number of hours spent in noncontact or direct observation of regular and special students; and (e) the minimum number of contact hours prior to student teaching in which the trainee worked directly with exceptional children/youth categorized as behaviorally disordered/emotionally disturbed. The original survey was mailed to special education department chairpersons, while a second survey was mailed to faculty listed in the respective college catalogs as special education faculty; 42 institutions — 75% of the training programs —responded to either the first or second inquiry.

Of the 42 institutions responding 15 indicated that training was offered only at the masters level for teachers of the behaviorally disordered/emotionally disturbed. Institutions reporting graduate level training only were not contacted further as the focus of the inquiry was on undergraduate training.

The third phase of the survey consisted of telephone interviews with the remaining 27 undergraduate training institutions to clarify responses to survey questions and to solicit anecdotal information regarding certification and training practices from faculty. Approximately 50% of the 27 institutions were either small colleges/universities with a student population under 5,000, or situated in geographical areas which could be considered rural. The institutional data, therefore, may not be considered representative of a larger population of institutions.

Reliability

The information reported is based on written statements and telephone interviews. Reliability checks consisted of independent scoring of the written material or a second phone call to re-interview the respondents. Reliability checks were conducted on approximately 25% of the information collected. A criterion of interrater agreement was established at 90%, with estimates calculated by dividing the number of agreements plus disagreements and then multplying by 100.

RESULTS

Reliability

Reliability checks were conducted on state department information as well as on reports from faculty of personnel preparation programs. From the 39 state departments who responded to the first or second inquiry, 10 were selected at random for data verification; the reliability figure obtained was 97%. From the 42

institutions responding to the written survey, 11 were subjected to retabulation. There was 100% agreement for those checks. Additionally, 11 faculty were contacted a second time by telephone with 100% agreement for the information solicited across the two interviews.

State Certification Practices

Table 1 shows the results of the survey of state departments practices for the 39 states that responded. If a state department of education did not respond to the second request for information it was not included in this report for the reason that the information is based on state requirements as of the 1982-83 academic year. Information in Table 1 was derived from published state department documents and from written information reported by state department officials. Of the respondents 54% stated that their state offers some form of noncategorical, multicategorical, generic, or general certification in special education; 60% of the states require elementary or secondary certification in order to obtain special education certification/endorsement. Only three states administer some form of standardized test to those applying for special education certification. Two-thirds of the states responding recommended practicum or field experiences in conjunction with didactic coursework; however, the extent of the field and/or practicum exprience(s) was not clearly stated. All but three — 92% of the states — specified that some form of student teaching experience with exceptional children was required. Yet, only 30% of department documents specified a minimum number of hours of teaching or course credits in student teaching required for certification. In instances where student teaching standards were not enumerated, the specification of those standards was the responsibility of the training institution.

Personnel Preparation Practices

Table 2 contains data collected from training institutions to explicate and elaborate on information received from the state departments of education. Of the training institutions 63% reported offering noncategorical, multicategorical, generic, or general certification programs in comparison to 54% of the departments of education; 59% of the institutions and 60% of the state departments require regular certification in addition or concurrent to special education certification. And 93% of the institutions reporting considered their program to be competency-based at the undergraduate level.

If teaching is comprised of a set of skills that can be improved on through practice, the number of supervised experiences prior to student teaching should have an impact on the level of preparation. As Table 2 shows, the number of hours that the trainee is required to observe classroom practices ranged from 0 to 80 (with a mean of 19.77 hours and a median of 10 hours). When faculty were asked to give information on the number of direct instruction hours trainees spent with special populations (exclusive of BD/ED children), the range was from 0 to 675 hours, with a mean and median of 100.81 and 48 hours, respectively. When asked the same question, but in relation to behaviorally disordered/emotionally disturbed children/youth, the respondents reported a range of 0 to 660 hours, with a mean and median of 148.59 and 100 hours, respectively. With regard to the culminating experience, faculty reported trainees averaged just over 375 hours in the student teaching experience (median of 315 hours and range from 180 to 600 hours). While the state departments of

TABLE 1

State Department of Education Responses to Survey on Certification Standards for Teachers of Behaviorally Disordered Students

State	Does the State Offer, Require, or State: Noncat Certif	Elem/Sc Certif	Comp Test	Prior Pract	St Tch Exper	Hours Stated
Alabama	N	Y	Y	—	Y	—
Alaska	Y	Y	N	—	Y	—
Arizona	N	Y	Y	Y	Y	—
Arkansas	Y	Y	N	Y	Y	—
California	Y	Y	N	—	Y	—
Colorado	Y	N	N	—	Y	—
Connecticut	N	N	N	Y	Y	Y
Delaware	N	N	N	—	Y	Y
Florida	N	N	N	Y	Y	—
Georgia	—	—	—	—	—	—
Hawaii	N	Y	N	Y	Y	—
Idaho	Y	N	N	—	Y	—
Illinois	N	Y	N	Y	Y	Y
Indiana	Y	N	N	Y	Y	Y
Iowa	N	Y	N	Y	Y	—
Kansas	N	N	N	Y	Y	Y
Kentucky	Y	N	N	—	Y	—
Louisiana	Y	N	N	Y	Y	Y
Maine	N	Y	N	Y	Y	—
Maryland	Y	N	N	—	Y	Y
Massachusetts	—	—	—	—	—	—
Michigan	N	N	N	Y	Y	Y
Minnesota	N	Y	N	—	Y	Y
Mississippi	Y	Y	N	—	Y	—
Missouri	N	N	N	Y	Y	Y
Montana	Y	Y	N	—	Y	—
Nebraska	Y	Y	N	Y	Y	—
Nevada	—	—	—	—	—	—
New Hampshire	N	N	Y	—	Y	—
New Jersey	Y	N	N	Y	Y	—
New Mexico	Y	Y	N	Y	Y	—
New York	Y	N	N	—	N	—
North Carolina	—	—	—	—	—	—
North Dakota	N	Y	N	Y	Y	—
Ohio	N	Y	N	Y	N	—
Oklahoma	—	—	—	—	—	—
Oregon	Y	Y	N	Y	N	Y
Pennsylvania	Y	Y	N	Y	Y	—
Rhode Island	Y	Y	N	Y	Y	Y
South Carolina	—	—	—	—	—	—
South Dakota	Y	Y	N	Y	Y	—
Tennessee	Y	N	N	Y	Y	—
Texas	—	—	—	—	—	—
Utah	—	—	—	—	—	—
Vermont	Y	Y	N	Y	Y	—
Virginia	—	—	—	—	—	—
Washington	—	—	—	—	—	—
West Virginia	N	Y	N	Y	Y	—
Wisconsin	N	Y	N	Y	Y	—
Wyoming	—	—	—	—	—	—

education did not specify, training institutions provided concise information on the level of preteaching experiences. Finally, the time allocated for the student teaching exprience ranged from 4-, 6-, or 17-week full-time placement to 15- to 17-week split-time placements, with part spent in special, and the remainder of the day spent in regular education classes.

Anecdotal Information

A major concern expressed by interviewed respondents was the need for supervised practicum experiences to afford prospective teachers repeated opportunity to practice instruction, obtain feedback, and demonstrate mastery of competencies taught in conjunction with didactic coursework. Assuming information obtained from the 27 respondents interviewed is representative, it appears that the emphasis on practicum hours corresponds with faculty concern for providing more applied experiences. The overwhelming support for training at an advanced level only was predicated on the fact that faculty felt it was not possible to provide sufficient training within the confines of a 4-year program. For example, one respondent stated that "while we certify BD/ED

TABLE 2

Teacher Training Institution Responses to Survey on Certification Standards for Teachers of Behaviorally Disordered Students

	Does the Institution Offer, Require or State:						
	Noncat	Comp	Elem/Sc	Hours	Spent	Engaged In:	
State	Certif	Based	Cert	Obs.	Sp Ed	BD/ED	St Tch
Alabama	No	No	Yes	50	0	400	500
Arizona	Yes	Yes	No	60	0	225	525
California	Yes	Yes	Yes	80	0	240	240
Delaware	Yes	Yes	No	18	40	0	245
Iowa	Yes	Yes	Yes	48	40	180	315
Illinois	No	Yes	Yes	31	150	150	288
Indana	Yes	Yes	Yes	10	72	72	280
Kentucky	Yes	Yes	Yes	50	0	96	280
Maryland	Yes	Yes	No	0	240	660	525
Michigan	No	Yes	Yes	0	0	120	525
Missouri	No	Yes	No	0	48	48	280
Montana	No	Yes	Yes	20	120	120	180
New Jersey	Yes	Yes	No	0	280	210	560
New York	Yes	Yes	Yes	0	150	300	525
North Carolina	Yes	Yes	No	20	30	442	420
Nevada	Yes	Yes	Yes	32	192	224	525
Rhode Island	Yes	Yes	Yes	30	30	60	200
South Carolina	No	Yes	No	6	65	95	480
South Dakota	No	No	Yes	23	0	0	270
Tennessee	Yes	Yes	No	6	50	50	525
Texas	Yes	Yes	Yes	0	50	0	280
Utah	Yes	Yes	Yes	0	675	0	525
Virginia	No	Yes	No	0	20	100	275
Washington	Yes	Yes	No	0	80	20	240
Wisconsin	No	Yes	No	10	0	100	600
West Virginia	No	Yes	Yes	40	20	100	240
Wyoming	Yes	Yes	Yes	0	370	0	315

teachers at the graduate level only, with a Generalist Certificate our undergraduates can teach the emotionally disturbed; but first of all, they are not trained sufficiently, nor do they have adequate opportunities to use the few skills they were introduced to." From a rural training institution, a faculty member reported that "our teachers are hired with an undergraduate certificate because of a need to fill a slot and not because of skills acquired." Finally, in states such as California, Maryland, and Michigan, undergraduate training consists of a 5-year program in which the final year is spent almost exclusively in practicum and direct instruction placements.

DISCUSSION

The present study represented an effort to examine current training and certification practices and to extend knowledge as it relates to time engaged in applying and to refining "best practices" in the area of behavioral disorders. Results confirm previous reports that while state departments of education specify minimum standards (stated in global, usually not directly measurable terms), it remains the training institution that recommends students eligible for certification to the state department of education. The standards specified by the state departments are guidelines used, not to grant certification, but as criteria for approving teacher preparation programs to train special educators. Our survey shows that while department standards are constant within (but no across) states, training programs present a bewildering array of sometime conflicting views on satisfying their state's certification standards.

The principle underpinning of competency-based teacher preparation is that the most appropriate way of assessing teaching mastery is to observe students applying those competencies in the classroom (Heller, 1983; Maple, 1983; Shores et al., 1976). While there appears to be a growing consensus over *what* to impart to teacher trainees (e.g., direct assessment and instruction skills, contingency management), the issue of *when* to prepare BD/ED teachers is yet to be resolved. While the present survey may not indicate a trend, results suggest that controversy surrounding training at an undergraduate versus graduate level has been rekindled (Johnson, 1968; F. Wood, personal communication, October 1983). Previous data obtained from practitioners offer strong testimony to the significance of the field experience in teacher training (Lutkemeier, 1983) and are in accordance with standards advocated by the Council for Exceptional Children (1983). Still, findings of the survey support the opinion that there is little unanimity among state departments or institutions regarding quantitative (e.g., minimum hours required), or qualitative (e.g., nature of the field supervision) dimensions of direct, supervised teacher preparation (Heller, 1983).

With special education students pursuing further coursework leading to dual certification (i.e., elementary and BD/ED certification), the quality of special education training is sometimes compromised (E. Guetzloe, personal communication, November 1983; Lutkemeier, 1983). Previously, encroachment from various disciplines has been cited as leading to a loss in the quality of categorical programs (Bartlett, 1979). With the growth in training along noncategorical lines (Belch, 1979; Blackhurst, 1982), some respondents argued that emphasis on regular and noncategorical preparation can lead to a "mismatch," with teachers prepared to instruct the mildly handicapped often being engaged to teach the severely disturbed, though ill-prepared to do so.

In all, our survey suggested that several possible trends in the preparation of

BD teachers are emerging: Regular certification and/or teaching experience is being required preparatory to BD training; increased emphasis on field experiences is being advocated; the period of training is being extended — 5-6 year BS or MS programs; and a mix of categorical and noncategorical approaches linked to undergraduate versus graduate training now exist. As with many previous shifts, compelling research evidence is lacking to support these changes in training practices. Lutkemeier (1983) accurately pointed out that teacher educators have much to contribute to each other's training efforts. If we are to attain a truly field-responsive approach — one which reflects changes in both client *and* practitioner needs — opportunities for research collaboration among teacher training programs should no longer be ignored. As Parker (1980) has asserted, "We as professionals must become watch dogs of our profession, or we will (remain) the reacting tail of the dog" (p. 168).

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